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Olive Thorne Miller

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No. 2.

MRS. OLIVE THORNE MILLER.

BY FLORENCE MERRIAM BAILEY.

Plate VII.

LITTLE more than a month after the last meeting of the A. O. U., at which greetings were sent from the Council to Mrs. Miller as the oldest living member of the Union, came the announcement of her death, on December 26, 1918. Born on June 25, 1831, she had indeed been allotted a full span, and for thirty-one of her eighty-seven years she had been associated with the American Ornithologists' Union joining four years after it was founded and being made Member in 1901 when that class was established.

Harriet Mann — for the more familiar name of Olive Thorne Miller was the pen name adopted after her marriage — was born at Auburn, New York, where her father, Seth Hunt, was a banker; but she was of New England ancestry on both sides of the family, her paternal grandfather being an importing merchant of Boston, and her great-grandfather, Captain Benjamin Mann, having organized a company during the revolution of which he was in command at Bunker Hill.

From Auburn the family moved to Ohio when she was eleven years old, making the journey, in lieu of railroads, by "packet" on the canal through the Mohawk Valley, by steamer across Lake Erie, and finally by an old-fashioned thoroughbrace coach for twenty-five miles through Ohio — a journey full of romance to an

imaginative child, and described entertainingly in one of Mrs. Miller's delightful and in this case largely autobiographical child stories, 'What Happened to Barbara.' In Ohio she spent five years in a small college town where she attended private schools, among them one of the Select Schools of that generation, with an enrollment of some forty or fifty girls. At the age of nine, as she says, she "grappled with the problems of Watts on the Mind!" To offset the dreariness of such work, she and half a dozen of her intimate friends formed a secret society for writing stories, two members of the circle afterwards becoming well known writers. For writing and reading even then were her greatest pleasures. The strongest influence in her young life, she tells us, was from books. "Loving them above everything, adoring the very odor of a freshly printed volume, and regarding a library as nearest heaven of any spot on earth, she devoured everything she could lay her hands upon." As she grew older the shyness from which she had always suffered increased painfully, and coupled with a morbid sensitiveness as to what she considered her personal defects made people a terror to her; but solitary and reticent, she had the writer's passion for self expression and it is easy to understand her when she says, "To shut myself up where no one could see me, and speak with my pen, was my greatest happiness."

In 1854, she married Watts Todd Miller, like herself a member of a well known family of northern New York, and in her conscientious effort to be a model wife and to master domestic arts to which she had never been trained, she sacrificed herself unnecessarily. "Many years I denied myself the joy of my life — the use of my pen," she tells us, "and it was not until my children were well out of the nursery that I grew wise enough to return to it."

The history of the vicissitudes of her literary life is at once touching and enlightening. Full of ardor to reform the world, to prevent needless unhappiness and to set people on the right path, her first literary attempt was the essay, but as she expressed it, "the editorial world did not seem to be suffering for any effusions of mine," and her manuscripts were so systematically returned that she was about giving up, concluding during very black days that she had mistaken her calling; when a practical friend gave her a new point of view. What did the public care for the opinions of

an unknown writer? she asked. Let her give what it wanted — attractively put information on matters of fact. Then when her reputation was established, people might be glad to listen to her views of life.

Philosophically accepting the suggestion, she calmly burned up her accumulated "sentiments and opinions," and set about writing what she termed "sugar-coated pills of knowledge" for children. The first, the facts of china-making in the guise of a story, she sent to a religious weekly which had a children's page, and to her surprise and delight received a check for it — her first — two dollars! This was apparently in 1870, and for twelve years, she worked in what she terms that "Gradgrind field" in which during that period she published some three hundred and seventy-five articles in religious weeklies, 'Our Young Folks,' 'The Youth's Companion,' 'The Independent,' 'St. Nicholas,' 'The Chicago Tribune,' 'Harper's,' 'Scribner's,' and other papers and magazines, on subjects ranging from the manufacture of various familiar articles, as needles, thread, and china to sea cucumbers, spiders, monkeys, and oyster farms; and during those twelve years, in addition she published five books, the best known of which were perhaps 'Little Folks in Feathers and Fur,' 1873, 'Queer Pets at Marcy's,' 1880, and 'Little People of Asia,' 1882.

About this time, having lived in Chicago nearly twenty years, the Millers, with their two sons and two daughters, moved to Brooklyn, where they lived until Mr. Miller's death. Not long after settling in Brooklyn, when she had spent twelve years mainly on miscellaneous juvenile work, Mrs. Miller was visited by a friend who gave her a new subject, completely changing the course of her life. The friend was none less than Mrs. Sara A. Hubbard, whom she had known as a book reviewer in Chicago, but who was also an enthusiastic bird woman — later an Associate of the A. O. U. — and whose greatest desire in coming to New York had been to see the birds.

As Mrs. Miller naïvely remarks, "of course I could do no less than to take her to our park, where were birds in plenty." And here, in Prospect Park when she was nearly fifty years old — incredible as it seems in view of her later work — Mrs. Miller got her first introduction to birds. "I knew absolutely nothing

about ornithology," she confesses; "indeed, I knew by sight not more than two birds, the English Sparrow and the Robin, and I was not very sure of a Robin either! I must say in excuse for myself," she adds, "that I had never spent any time in the country and had been absorbed all my life in books. My friend was an enthusiast, and I found her enthusiasm contagious. She taught me to know a few birds, a Vireo, the charming Catbird, and the beautiful Wood Thrush, and indeed before she left me I became so interested in the Catbird and Thrush that I continued to visit the park to see them, and after about two summers' study the thought one day came to me that I had seen some things that other people might be interested in. I wrote what I had observed and sent an article to the 'Atlantic Monthly' and it was accepted with a very precious letter from Mr. Scudder, who was then editor. All this time my love of birds and my interest in them had been growing, and soon I cared for no other study. I set up a bird-room in my house to study them winters and I began to go to their country haunts in the summer."

Of the bird-room described so interestingly in 'Bird Ways' it is only necessary to say that first and last Mrs. Miller had about thirty-five species of birds which she bought from the bird stores in winter and allowed to fly about in her bird room, where she could study them unobtrusively at her desk by means of skillfully arranged mirrors. For twenty summers, from 1883 to 1903, she spent from one to three months in the country studying the wild birds, visiting among other sections, Maine, Massachusetts, Vermont, New Hampshire, New York, Ohio, North Carolina, Michigan, Colorado, Utah, and California, taking careful notes in the field and writing them up for publication at the end of the season. To one who has not known her, the method may sound deliberate and commercial, but to one who has worked joyfully by her side, each year's journey is known to have meant escape from the world, to the ministering beneficence of Nature. Let her speak for herself.—"To a brain wearied by the din of the city . . . how refreshing is the heavenly stillness of the country! To the soul tortured by the sights of ills it cannot cure, wrongs it cannot right, and sufferings it cannot relieve, how blessed to be alone with nature, with trees living free, unfettered lives, and flowers

content each in its native spot, with brooks singing of joy and good cheer, with mountains preaching divine peace and rest!"¹ Freed from city life and the tortures imposed by her profound human sympathy, each gift of fancy and imagination, each rare quality of spirit, joined in the celebration of the new excursion into fields elysian. But while each sight she saw was given glamour and charm by her imagination and enthusiasm, her New England conscience ruled her every word and note, and not one jot or tittle was let by, no word was set down, that could not pass muster before the bar of scientific truth.

Mrs. Miller's first bird book was published in 1885 and the others followed in quick succession although they were interlarded with magazine articles and books on other subjects — as 'The Woman's Club,' 1890, 'Our Home Pets,' 1894, 'Four Handed Folk,' 1896, and a series of children's stories, 1904 to 1907. Her eleven bird books, published by the Houghton, Mifflin Company, were 'Bird Ways,' 1885, 'In Nesting Time,' 1887, 'Little Brothers of the Air,' 1892, 'A Bird Lover in the West,' 1894, 'Upon the Tree Tops,' 1897, 'The First Book of Birds,' 1899, 'The Second Book of Birds,' 1901, 'True Bird Stories from my Note-Books,' 1902, 'With the Birds in Maine,' 1903, 'The Bird our Brother,' 1908, and her last book, 'The Children's Book of Birds' — a juvenile form of the First and Second Book of Birds — 1915.

The newspaper and magazine articles of this second period of Mrs. Miller's literary work, beginning with the time when she first began to study birds, were published not only in the principal religious weeklies and others of the former channels, but by various syndicates, in 'Harper's Bazar,' and the 'Atlantic Monthly.' They included not only a large number of bird papers, some of which appeared later in her books, but also articles on general subjects, proving her friend's statement, for now that her reputation had become established on a basis of fact, the public was ready to profit by her "sentiments and opinions."

Her last book of field notes — 'With the Birds in Maine' — was published in 1903, when she was seventy-two, after which time she was able to do very little active field work and her writing was confined mainly to children's books.

¹ Upon the Tree-Tops', 3, 1897.

In 1902 Mrs. Miller had visited her oldest son, Charles W. Miller, in California, and fascinated by the outdoor life and the birds and flowers of southern California, she would have returned to live, without delay, had it not been that her married daughter, Mrs. Smith, and her grandchildren lived in Brooklyn. In 1904, however, accompanied by her younger daughter, Mary Mann Miller, she did return to California, where her daughter built a cottage on the outskirts of Los Angeles on the edge of a bird-filled arroyo where rare fruits and flowers ran riot and the cottage — El Nido — became embowered in vines and trees.

From 1870–1915, as nearly as can be determined by her manuscript lists, Mrs. Miller published about seven hundred and eighty articles, one booklet on birds and twenty-four books — eleven of them on birds, her books being published mainly by the Houghton Mifflin Company and E. P. Dutton. When we stop to consider that her real work did not begin until she was fifty-four, after which four hundred and five of her articles and nineteen of her books were written, and moreover that during her later years, by remarkable self-conquest, she became a lecturer and devoted much of her time to lecturing on birds in New York, Brooklyn, Philadelphia, and other towns, we come to a realization of her tireless industry and her astonishing accomplishment.

When living in Brooklyn she was a member of some of the leading women's clubs of New York and Brooklyn, giving her time to them with the earnest purpose that underlay all her work. In the midst of her busy life, it is good to recall as an example of her devotion to her friends, that for years Mrs. Miller gave up one day a week to visiting an old friend who had been crippled by an accident; and after she had gone to California took time to make for her a calendar of three hundred and sixty-five personally selected quotations from the best in literature.

Among Mrs. Miller's pleasures during her later years in the East were the meetings of the Linnæan Society held in the American Museum of Natural History in New York, and the A. O. U. meetings which she attended in New York, Philadelphia, Boston, and Washington, enjoying not only the papers of other workers, but the rare opportunity to meet those interested in her beloved work. In a letter written after one of the meetings she exclaimed — "You don't

know what a good time we have always. We had a real 'love feast' this time. Not only all the old standbys — Mr. Brewster, Mr. Sage, Dr. Allen, Dr. Merriam and the rest, but a lot of Audubonites and John Burroughs. I went over and stayed with Mrs. May Riley Smith and attended every session." In this same letter she speaks of her promotion to the new class of membership and says, "It is a great pleasure to have *honest work* recognized, and encourages one to keep at it."

When Mr. Brewster, in view of a discovery made by Mrs. Miller, wrote in 'The Auk,' regretting that one "gifted with rare powers of observation" should not record at least the more important of her discoveries in a scientific journal, Mrs. Miller replied in another note to 'The Auk,' confessing that she would not know what was a discovery; adding with the enthusiasm that vitalized her work — "to me everything is a discovery; each bird, on first sight, is a new creation; his manners and habits are a revelation, as fresh and as interesting to me as though they had never been observed before." Explaining her choice of a literary rather than a scientific channel of expression, she gives the key to her nature work, one of the underlying principles of all her work — "my great desire is to bring into the lives of others the delights to be found in the study of Nature."

Looking over the bookshelf where the names of Burroughs, Torrey, Miller, and Bolles call up each its own rare associations, I am reminded of a bit of advice that came long years ago from Mr. Burroughs' kindly pen — "Put your bird in its landscape" — as this seems the secret of the richness and charm of this rare company of writers, for while beguiling us with the story of the bird, they have set it in its landscape, they have brought home to us "the river and sky," they have enabled us to see Nature in its entirety.

Remembering this great boon which we owe Mrs. Miller, it seems rarely fitting that when her three score years and ten were accomplished, her last days should have been spent in the sunshine surrounded by the birds and flowers which brought her happiness in beautiful California.

AN EXPERIENCE WITH HORNED GREBES (*COLYMBUS AURITUS*).

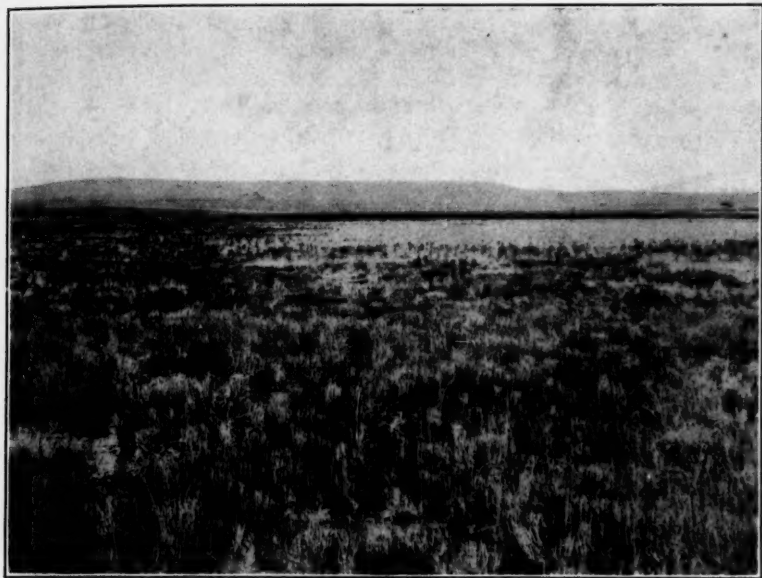
BY ALEXANDER D. DUBOIS.

Plates VIII-X

THE southeastern portion of Teton County, Montana, lying in the prairie region east of the Rocky Mountains, comprises flat and rolling bench-lands, traversed at frequent intervals by coulees which are tributary to the Teton and Sun Rivers. On these benches are occasional shallow depressions which have no natural drainage. They form transient "prairie sloughs" which may be dry at one season and wet meadows or ponds of water at another.

The slough which afforded the present observations is a crescent-shaped depression, not more than ten or twelve acres in extent, curving about a knoll upon which stands a homesteader's cabin. There are no lakes or water courses in the immediate vicinity. During the last few years the region has been rapidly transformed into grain farms. At the time these notes were made the meadow in question was bordered on three sides by plowed fields. The spring of 1917 was an extremely rainy one, following a winter of much more than normal snow-fall. In consequence, the crescent-shaped meadow became a marshy sheet of water.

On the open water of this pond two Grebes were seen on several days in May. On the third of June, while walking around the pond scanning its surface with a field-glass, I was suddenly amazed to see a Grebe sitting upon a nest which protruded above the water amid the scant vegetation. Careful examination showed the bird to be *Colymbus auritus*. She slipped from the nest, as I slowly waded toward her, and swam about in the open water, anxiously watching my every movement. The interest was mutual. After watching the bird for some time I went up to the nest and found that it contained two eggs. Subsequent visits showed that the eggs were deposited at intervals of two days; the dates of the visits and number of eggs found at each visit being as follows: June 3 (2);



1



2

1. NESTING SITE OF HORNED GREBE IN A FLOODED MEADOW. NEST BEYOND OPEN WATER. WHEAT STUBBLE IN FOREGROUND.
2. HORNED GREBE ON HER NEST, SHOWING SCANT SURROUNDING VEGETATION.

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June 5 (3); June 7 (4); June 9 (5); June 12 (6); June 13 (6).

Whenever I appeared at the edge of the slough, it was the custom of the two Grebes to float about upon the area of open water with an air of supreme unconcern. They busied themselves constantly with their toilets, preening the feathers of all parts of their bodies and very frequently tipping or rolling themselves in the water to reach their under parts with their bills. In this half-capsized posture they would float for several seconds, exposing to view the strikingly prominent white area that is normally below the water-line. This preening and floating in different positions, on the part of both birds, proceeded without interruption during my entire stay, each day that I visited them. It became very evident that it was practiced as a ruse to hold the attention of the intruder and thus divert him from their nest.

On the morning of June 12, a camera was taken to the nest-site with the purpose of making photographs of the nest and eggs. On the land to the south, a homesteader with eight horses to his plow, was turning over the virgin sod. His furrows ended at the edge of the slough southwest from the nesting site of the Grebes. Upon wading to the nest I found the six eggs shielded on the southwest side, by a partial covering of vegetation which had been pulled up on that side only. The general character of the country and location of the nest are shown in the photograph on Plate VIII. After making a photograph, and remaining for a time near the nest to observe the parent birds, I left the tripod and camera in position and went away. The female was continually gaining either confidence or bravery and had been swimming about in an agitated manner, not far from me, as I stood quietly by the camera. Before I had gotten out of sight of the nest I saw her go to it and change the covering or shielding material to its opposite edge, thus sheltering the eggs from the too inquisitive gaze of the camera's eye. When I returned from the cabin the bird was on the nest, incubating. She took to the water as I came up, but continued to swim back and forth among the scant, neighboring tufts of marsh grass. As I stood very quietly for some time behind the camera her boldness gradually increased, until at length I was able to photograph her near the nest, with the aid of only ten feet of rubber tubing attached to the shutter

release. The making of these photographs consumed much time and continually the Grebe was growing bolder. She swam almost under the camera, and when I came close to the nest she made a dash at me, shooting entirely out of the water. This show of force was afterward repeated frequently, and it sometimes ended with a violent, splashing dive which sent a shower of spray over the camera outfit and the photographer. Meanwhile her spouse drifted quietly at a safe and respectful distance. Although one photograph of the bird on her nest was secured by means of a very long thread, the result was rather unsatisfactory.

On the following day, June 13, I donned the hip boots again and stationed myself with the camera outfit, determined to see if patience would be rewarded by an opportunity to photograph the bird on her nest at close range. It was a wearisome experiment, but not without result, for eventually the Grebes became remarkably bold. The female was the first to approach. She swam around the nest repeatedly, but for a long time refused to venture upon it. For the most part the male witnessed her adventures from a discreet distance. Occasionally however, he came up; and finally, while the female was showing her agitation by swimming hurriedly about, the male swam deliberately to the nest, climbed up its side, and sat on the eggs, facing me. A plate was exposed on this unexpected sitter but unfortunately was ruined by an accident before development. He became alarmed by my activities in changing plate-holders, or perhaps by the removal of my head from beneath the focusing cloth, and suddenly slipped off the nest into the water. Both birds were subsequently photographed together, near the nest.

I cautiously moved the camera somewhat closer and waited. The female frequently shot out of the water at me with a rush accompanied by a harsh cry, and sometimes ended her attack with a dive and a great splash. Eventually she went upon the nest, and once in contact with her eggs, she became invincible. I photographed her thus; then moved the tripod toward her, slowly and cautiously, keeping my head beneath the cloth. In this way the camera was placed within arm's length of the bird and another exposure made, which resulted in the intimate portrait of Plate X, fig. 1. I uncovered my head, but she remained firm, and when

I extended my hand toward her she reached out her long neck and delivered a vicious, stinging stab with her sharp bill. The threatening attitude of the bird, just previous to striking, is shown in Plate X, fig. 2.

The exposed situation of this nest is shown in several of the photographs. It consisted of a mass of coarse grasses, many of them fresh and green, floating in about a foot of water, the body of the nest below the water line being of such bulk as to almost touch the muddy bottom. The nest-lining, in the bottom of the well hollowed cavity, was very wet and soggy, being only slightly above the water surface when the nest was unoccupied, and probably below it when the weight of the bird was added to that of the nest. This lining was composed of decaying vegetation which was decidedly warm to the touch, in the sunshine, while the wet rim of the nest was cold.

The eggs of this set were taken. They were of course in various stages of incubation, from fresh in the last, to well begun in the first-laid egg. For some time after I had left the empty nest, taking the camera with me, the two Grebes swam to and fro beside it, or circled around it, frequently going to the nest and climbing part way up. Occasionally one of the birds, presumably the female, sat upon the nest for a brief period, shifting herself in a restless manner, and then returned to the water.

For several days I stayed away. Would these birds nest again in this small and rapidly diminishing slough at so late a season? Would they leave the slough and go elsewhere to nest? Or would they abandon the duty of reproduction altogether? These questions seemed of sufficient interest to demand further observations, but not wishing to further inject the factor of the human menace into their already complicated affairs, I left the birds entirely to themselves. Meanwhile extremely dry warm weather was causing rapid evaporation and the slough was shrinking very perceptibly.

My next visit, on the eighteenth of June, disclosed the fact that the Grebes were not only present but were building a new nest not far from the old one. The nest seemed nearly completed. The two birds were floating near each other on the open water, preening their plumage in the ostentatious manner previously described.

At seven-thirty on the morning of June 21, the new nest con-

tained two eggs, partially covered, especially on the northwest side, which was the direction from which I approached the slough. There was a striking difference in the coloring of the two eggs, in view of the slight difference in their ages. One egg was a drab-tinted cream; the other a beautiful greenish tint with a freshness and delicacy which is difficult to describe, and which marked it as having just been deposited by the bird. A schedule of the subsequent visits to this nest is given in the accompanying table:

Visit No.	Date	Time of day	Number of eggs	Were eggs covered ?	Was either bird seen?
1	June, 18		0		Both on open water
2	" 21	7:30 A.M.	2	Partially covered	
3	" 22	8:00 A.M.	2	Sparsely covered	
4	" 23	7:30 A.M.	3		Not seen
5	" 24	9:00 A.M.	4	Covered	Bird seen on nest
6	" 25	7:30 A.M.	4	Lightly covered	Not seen
7	" 25	Sunset	4	Covered on E. side	Not seen
8	" 26	7:30 A.M.	5	Covered	One on open water
9	" 27	7:00 A.M.	5	Not covered	Saw bird leave nest
10	" 28	7:30 A.M.	5	Chiefly on E. side	Not seen
11	" 29	Evening	5	Covered	Not seen
12	July, 4		5	Covered on top	Not seen
13	" 8		5	Covered	Yes; in water-lane
14	" 9		5	Covered	Not seen
15	" 10	8:00 P.M.	5	Not covered	One bird seen
16	" 11	6:00 P.M.	5	Not covered	Not seen
17	" 12	5:00 P.M.	5	Partially covered	One on open water
18	" 13	6:00 P.M.	4	Not covered	Not seen
19	" 14		4	Lightly covered	Not seen
20	" 15	Evening	3		Bird on nest
21	" 16	10:00 A.M.	3	Not covered	Not seen
22	" 17	10:00 A.M.	3	Not covered	One seen with young
23	" 18	7:30 P.M.	2	Not covered	Not seen
24	" 20	6:00 A.M.	2	Not covered	Not seen
25	" 22	7:30 P.M.	2	Not covered	Not seen
26	" 23	9:00 A.M.	2	Not covered	Not seen
27	" 24	Evening	2	Not covered	Not seen

When I approached on the morning of June 24, the Grebe was on her nest. She made herself as inconspicuous as possible by

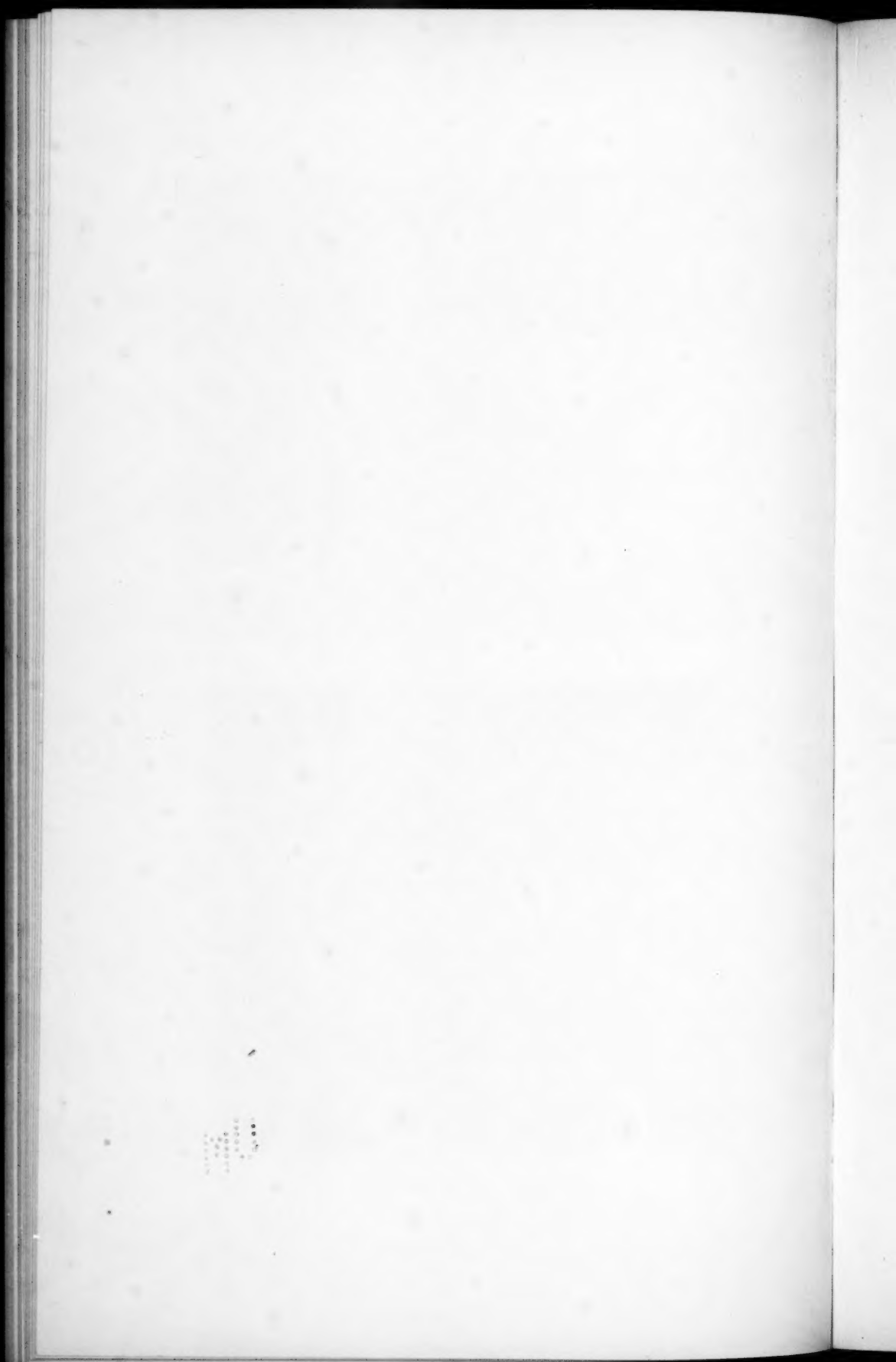


1



2

1. A PAIR OF HORNED GREBES AT HOME. FEMALE AT RIGHT.
2. NEST AND EGGS OF HORNED GREBE.



holding her head down, close to the nest rim. As I came within twenty-five or thirty yards of the nest the bird hastily pulled a covering of green-stuff over the eggs and slid silently into the water, disappearing completely. Although I watched for some time I did not succeed in catching even a glimpse of either of the birds.

On the occasion of the sixth visit (June 26) I found the nest lightly covered with fresh green stems and blades which had been plucked by the bird. At that time I made the notation in my field book: "Never see the birds on the open water any more." However, on the next day, some time after I had left the nest, I did see one of the Grebes floating on the open water. The eggs had again been covered with fresh vegetation.

On the morning of June 27, I approached by a circuitous route, passing by the nest with my interest ostensibly concentrated elsewhere. But as I passed too near her the bird slipped quickly off the nest without stopping to cover the eggs; and I could not find her afterward. It will be noted from the tabulated schedule that neither of the birds was seen at the tenth, eleventh, or twelfth visits. The thirteenth visit was more successful for I saw a Grebe sitting perfectly motionless, at the edge of a water-lane which traversed some of the thickest vegetation, its bright red eyes appearing as its only conspicuous feature. The next day (fourteenth visit), I could not find the birds, and the fifteenth visit gave me only a fleeting glimpse of a Grebe. The eggs were not covered but were slightly shielded on the side from which I had come. On the evening of July 12, one of the birds was observed floating, silent and solemn, with head toward me, at the farthest side of the open water. It was evident at this time that the birds had changed their dress since my acquaintance with them at their first nest, for no yellow "horns" were now visible.

On July 13, finding only four eggs in the nest, and pieces of egg shell both there and in the water, I searched carefully in the vicinity of the nest but without result. I could neither find the newly hatched young nor catch any glimpse of either parent. On the next day the conditions were the same except that the eggs were slightly covered and a few small feathers had been left on the nest, showing that the bird had been upon it.

The twentieth visit, on the evening of July 15, gave me an opportunity to examine the bird at close range. She was on the nest and allowed me to approach, cautiously, to a point twenty or thirty feet from her. She was considerably changed in appearance. The yellowish-white tip of the bill remained unaltered and the light line through the lower margin of the lore was observed to still persist, but the plumage of the head was much subdued, the yellow plumes having been exchanged for mere inconspicuous grayish streaks on the sides of the head. As I came up I could see a young bird poking its head through her wing. She soon left the nest, with a startling rush, and swam rapidly away, leaving three eggs in the nest and two tiny youngsters in the water. The newly hatched downy young can both swim and dive in a feeble way. As I approached them they tried to escape by diving. When I held them in my hands they gave utterance to a little cry not greatly different from that of domestic chicks.

The downy young are very striking in appearance. They are striped longitudinally with black and white stripes; the white however is rather a "soiled" or grayish white. There are two narrow white stripes on the head which converge to a point at the base of the bill. Between these stripes, on the forehead, is a small slightly raised bare spot, of a bright red color, back of which is a white elongated blotch, or median stripe. The bill is pink and has on both mandibles a white tip which resembles white porcelain. This is larger on the upper mandible than on the lower. On the upper mandible between the nostrils there is a black spot. The iris is brown, not red like that of the adults. The lobate feet are remarkably well developed, but the wings are rudimentary.

On the following day, July 16, I failed to find either the parent or the young at the nest. The three remaining eggs were not covered. Again on the morning of the seventeenth, the nest held only the three uncovered eggs; but when I skirted the east end of the slough to examine a Sora's nest, I was startled by the parent Grebe taking wing not far from me. She flew over the farthest part of the slough, but soon returned, after circling a time or two, to the small area of open water, where she alighted with a splashing glide. When on the wing this bird shows very prominent

white markings. The white secondaries cause the posterior portion of the wing to show as a prominent white area, and of course the entire under surface of the body, being white, is very conspicuous when the bird wheels. The flight is so duck-like that the flying Grebe might readily be mistaken, at a distance, for a duck.

I waded to the spot whence this bird had taken flight and presently saw the water agitated by some small creature beneath the surface. It was one of the diminutive downy Grebes, floating submerged, head downward, with its forward parts thrust into a mass of filamentous vegetation (algae), while its legs, stretched to their full extent posteriorly, were pointed vertically upward toward the surface of the water. I easily took it up in my hand.

The next day, July 18, at 7:30 P. M., another egg had hatched. The nest was not covered. It contained two eggs and nearly all of the opened shell of the other, which last circumstance was of course unusual. I heard the young bird, and by following the faint sound of its voice found it, in the water, about six or eight feet from the nest. It was small enough to have just emerged from the shell. Its bill was very pink and the naked red spot, or comb, on its forehead very bright, though only slightly raised above the surrounding skin. By the merest chance I discovered a downy young duck within a few feet of the Grebe's nest. It was not identified. Perhaps it had been attracted by the cry of the little Grebe. The adult Grebes were not seen, either on this visit or on July 20, when I looked for them early in the morning. On the latter date the two eggs and the nest were cold and the orphan above mentioned was dead, on the slope of the nest just above the surface of the water. There was an opening in the top of its skull through which its brain had been removed by some small creature. This nestling had probably never seen its parents but had taken to the water wholly by instinct.

On the evening of July 22, the two eggs were cold and had not been disturbed since my previous visit, at which time their positions had been carefully noted. However one of them was "pipped" and I could distinctly hear the voice of the bird within the shell. A search for the parent Grebes was without avail. A

faint voice, at the other side of the water, was detected and was followed several times, but when its author was finally located it proved to be not a Grebe but a recently hatched Sora Rail.

The next morning, although the sun shone upon the nest, the eggs were cold and the fetuses in both of them were dead. No birds were seen. My last visit, on the evening of July 24, yielded no further result. But I noted now, that there was no water around the nest. It was stranded upon a mud-bar. This was undoubtedly the cause of forced abandonment of the nest. The Grebes were unable to reach it by a water route, and no other mode of travel was possible to them. A search around the water area, now very small and shallow, gave no further evidence. The Grebes were never seen again.

In reviewing the account of these observations certain groups of data suggest themselves for summarization:

It is interesting to note that only six days elapsed between the removal of the first set of eggs and the deposition of the first egg in a new nest.

The period of incubation is twenty-four or twenty-five days, as shown in the following table of dates, noted at the second nest:

Egg No.	Date Laid	Date Hatched	Incubation Period in days
1	June 19 (?)	July 13	24
2	June 21	July 15	24
3	June 22 or 23	July 17 or 18	25
4	June 24	July 22, (Pipped)	Fetus died
5	June 26	Fetus died	

It will be observed that the fourth egg was alive and on the point of hatching, twenty-eight days after it was deposited, but this cannot be considered normal, since the egg had been deprived of the parent heat for several days. It seems remarkable that the fetus survived the cool nights.



1



2

1. HORNED GREBE WITHIN ARM'S LENGTH OF THE CAMERA.
2. FEMALE, HISSING AND READY TO STRIKE IN DEFENSE OF NEST.

1000
1000
1000
1000
1000

The change of color which these eggs undergo, is also worthy of note. I do not refer to the nest-stains caused by contact with the fermenting vegetation of the nest lining, but to a uniform color change of the surface layer of the shell, which is brought about presumably by exposure to light and atmosphere. Referring to the eggs of the second nest by numbers it will be noted that egg number two, when first observed at 7:30 A. M., had apparently just been deposited. As previously stated, its color was a very delicate bluish-green. Egg number one had already attained its final color; a sort of drab-tinted buff, which rendered it less conspicuous in the nest. Twenty-four hours later, egg number two had changed to the same color as egg number one. No data were recorded for egg number three in this respect. Egg number four, after thirty-six hours, was "nearly but not quite the same color as the others." After it had been in the nest forty-eight hours it was noted as, "same color as other eggs." But egg number five could scarcely be recorded as fully changed after eighty-four hours had elapsed. These notes would seem to indicate that the first-laid eggs change color more rapidly than the later ones. It may be noted in this connection that the first eggs are slightly richer in the light green pigment; possibly, also, they receive less shelter from the parent bird than the later eggs.

The usual vocal performance of these Grebes, so far as I was able to determine, is a sort of "ko-wee, ko-wee," repeated at regular intervals. It might be compared to the squeak of a dry wheelbarrow producing one double squeak at each revolution of the wheel. It is however of a clearer quality than this comparison might indicate. Each "ko-wee" has rising inflection and its two syllables are run closely together, with the accent on the last syllable.

The remarkable change of manner which came over these birds as the moult began will be appreciated by reference to the tabulated schedule of visits. The pugnacious bravery of the female at her first nest is amply attested by the photographs, while the records of the second nest show that the birds rarely permitted themselves to be observed, even at a distance, although they had eggs as before.

These Horned Grebes were absolutely isolated so far as con-

cerns other individuals of the species.¹ There were certainly no other Grebes in the slough. Their nesting associates were as follows: Red-winged Blackbird (*Agelaius phœniceus fortis*), about three pairs nesting; Sora Rail (*Porzana carolina*), three or four pairs nesting; Wilson's Phalarope (*Steganopus tricolor*), several pairs; Killdeer (*Oxyechus vociferus*), one pair in evidence; Savannah Sparrows (*Passerculus sandwichensis alaudinus*) were present at the slough all summer; and a pair of Pintails (*Dafila acuta*) were believed to have a nest in an adjoining field. The adjoining prairie was monopolized, as usual, by the Horned Larks (*Otocoris alpestris leucolæma*) and Longspurs (*Calcarius ornatus* and *Rhynchophanes mccowni*).

At the present writing this slough is dry; the road which passes through it is traveled every day by automobiles; and the spot where the Grebes established their home a year ago has now been plowed and planted.

HISTORICAL NOTES ON HARRIS'S SPARROW (*ZONOTRICHIA QUERULA*).

BY HARRY HARRIS.

DURING the early decades of the nineteenth century when those pioneer ornithological enthusiasts, whose names and discoveries are familiar to all students of the science, were pushing beyond the frontiers in quest of new objects of study, the Kansas City region was the gateway to the wilderness and the very outpost of civilization. In this immediate neighborhood where the down-rushing Missouri is joined by the less turbulent Kaw, and where the great river bends finally to the east, were situated the frontier settlements of Independence, Fort Osage (Fort Clark, of Lewis

¹ Mr. A. A. Saunders advises me that so far as he is aware this is the only record of nesting of the Horned Grebe in Montana, although he has found two previous records of occurrence of the species in the state.

and Clark), Westport, and the great Konzas Indian village, while a short distance up-stream were three other landmarks frequently mentioned by travelers. Fort Leavenworth, the mouth of Little Platte River, and the Black Snake Hills.

These names bring to mind several notable ornithologists and botanists whose published journals and narratives are at once fruitful sources of information to the working student and delightful reading to any person. Of all the young scientists who passed this way in their eagerness to explore the unknown beyond and gather its treasures to science, perhaps none are of more interest, though others may be more widely known, than John K. Townsend and Thomas Nuttall. Nuttall's discovery here of the bird now known as Harris's Sparrow (*Zonotrichia querula*), together with the fact that two other eminent ornithological explorers, at later periods, each believed he had discovered the bird in this same region, renders the tradition of peculiar and obvious local interest.

A long entertained hope of being able to determine the actual locality in Jackson County, Missouri, where Nuttall took the original specimen of this Sparrow, has led the writer to bring together the widely scattered data bearing on the early history of the bird. The facts in question, which do not appear to have been previously assembled, present several interesting features.

Nuttall and Townsend had outfitted in St. Louis in late March, 1834, preparatory to a leisurely pedestrian journey of some three hundred miles across the state to Independence, where they were to join the large caravan under Captain Nathaniel J. Wyeth, bound for the Columbia River country. On April 28th the party left Independence over the frontier trail to Westport, distant approximately fourteen miles. Some time during the day Nuttall, who was primarily a botanist and is said to have carried no gun, took, or had taken for him by some member of the party, the type specimen of Harris's Sparrow which he named the Mourning Finch (*Fringilla querula*). Nuttall writes: "We observed this species, which we at first took for the preceding [White-crowned Sparrow], a few miles to the west of Independence, in Missouri, towards the close of April. It frequents thickets, uttering in the morning, and occasionally at other times, a long, drawling, monotonous and solemn note *te de de de*. We heard it again on the 5th of May,

not far from the banks of the Little Vermilion, of the Kansa."¹

The information contained in this short paragraph is the only guide the writer has had in a search for the spot where the species was first met with. Not a little difficulty has been experienced



in tracing the road between Independence and Westport in use in the early thirties, since but meager graphic record of its course has been preserved. The accompanying sketch map is in the main

¹ A Manual of the Ornithology of the United States and of Canada, by Thomas Nuttall, Second edition of the volume on Land Birds. Boston, 1840.

authentic, authorities differing as to only a short stretch about three miles from old Westport. Many years association with the birds of this region leads the writer to the conclusion that these scientists would have had difficulty in crossing the Blue Valley at this season of the year without seeing or hearing troops of these striking Sparrows. That part of the road lying within the valley is indicated on the map by arrows.

Townsend's frame of mind on this momentous day is best described in his own words. "On the 28th of April, at 10 o'clock in the morning, our caravan, consisting of seventy men, and two hundred and fifty horses, began its march; Captain Wyeth and Milton Sublette took the lead, Mr. N.[uttall] and myself rode beside them; then the men in double file, each leading, with a line, two horses heavily laden, and Captain Thing [Captain W.'s assistant] brought up the rear. The band of missionaries, with their horned cattle, rode along the flanks.

"I frequently sallied out from my station to look at and admire the appearance of the cavalcade, and as we rode out from the encampment, our horses prancing, and neighing, and pawing the ground, it was altogether so exciting that I could scarcely contain myself. Every man in the company seemed to feel a portion of the same kind of enthusiasm; uproarious bursts of merriment, and gay and lively songs, were constantly echoing along the line. We were certainly a most merry and happy company. What cared we for the future? We had reason to expect ere long difficulties and dangers, in various shapes, would assail us, but no anticipation of reverses could check the happy exuberance of our spirits.

"Our road lay over a vast rolling prairie, with occasional small spots of timber at the distance of several miles apart, and this will no doubt be the complexion of the track for some weeks.

"In the afternoon we crossed the Big Blue River at a shallow ford. Here we saw a number of the beautiful Yellow-headed Troopials, (*Icterus zanthrocephalus*) feeding upon the prairie in company with large flocks of Blackbirds, and like these, they often alight upon the backs of our horses."¹

¹ Narrative of a Journey Across The Rocky Mountains, to the Columbia River and a Visit to the Sandwich Islands, Chili, &c. With a Scientific Appendix. By John K. Townsend. Philadelphia, 1839.

Here is a vivid picture of a situation well calculated to stir the imagination and excite the enthusiasm of this twenty-five year old easterner on his first visit to the virgin West, and thoughts of ornithological discoveries were no doubt reserved for the future. Nuttall could not have been so distracted by the excitement incident to the departure of this wild cavalcade, since he had had several previous experiences of the wilderness, was an older man, and was by nature "shy, solitary, contemplative, and of abstract manner." At all events he set the ornithological pace immediately at the start of the journey by discovering a new bird. Townsend's silence in his 'Narrative' regarding this important event was of course due to courtesy to the discoverer who had not yet given his species to science.

In my account of Nuttall's discovery of his "Mourning Finch," I have assumed that the specimen he took in Jackson County is the type. Perhaps it would be more accurate to say that in the absence of any definite knowledge regarding the type specimen it is presumed from his description that the specimen here taken was the type. The description referred to was published in the second edition of his *Manual* (the volume on water birds being a reprint of the first edition) which did not appear until 1840. It will thus be seen that this important species was allowed to remain in obscurity for six years while twenty-four other new species subsequently discovered on the trip had been described, as well as sixteen figured by Audubon in the *Great Work*, prior to the appearance of Townsend's *Narrative* in 1839. Nuttall's published description of the bird is merely the briefest possible outline of salient specific characters, no measurements whatever being given.

On his return to the East, two years in advance of Townsend, Nuttall had in his possession a quantity of the latter's material for delivery to the Philadelphia Academy of Sciences, which Institution had helped substantially in financing the travelers. It was this material that Audubon sought so eagerly to possess, that his great work then nearing completion might not lack the new species.¹ Audubon had called on Nuttall, in Boston, in the hope

¹ An unbiased account of Audubon's efforts to secure these specimens is given in Chapter XXXI, Vol. 2, of Dr. Herrick's recent historical study 'Audubon The Naturalist.' Further light on the subject may be found in a letter from Audubon to Harris under date of Oct. 26, 1837, published in the *Auk*, Vol. XX, p. 370, by S. N. Rhoads. Audubon has left a full account of his activities at this time in the Introduction to Vol. 4 of the 'Ornithological Biography.'

of assistance from that quarter, and was promised duplicates of all the new species in his possession. It is said that five species were here secured, but the Mourning Finch was not included. Nuttall had reserved this discovery for his own book, and not only was posterity thereby deprived of an Havell engraving of the largest and handsomest of our Sparrows, but Audubon, being kept in the dark, was himself to later publish the bird as the discovery of his friend Edward Harris.¹

On the same day that Townsend and Nuttall were so picturesquely entering the Indian country, Maximilian, Prince of Wied, who had spent the previous year on the upper Missouri, was making his way down-stream on his return to civilization. On May 13, 1834, when but a few miles from the northern boundary of Missouri, his hunters took specimens of a bird new to him. In the second volume of his published journal,² he says: "It was toward eight o'clock in the cool morning of May 13 (1834) that we stopped on the right bank of the river and landed on a fine, green prairie, beset with bushes and high isolated trees.... We found many beautiful birds, among which *Icteria viridis* and the handsome Grosbeak with red breast *Fringilla ludoviciana*.... At noon we reached Belle-Vue, Major Dougherty's Agency.... To the naturalist the surroundings of Belle-Vue were highly attractive. The beautiful wooded hills had shady ravines and small wild valleys.... Many, and some of them beautiful, birds animated these lovely thickets, the Cuckoo, the Carolina Dove, the Red-breasted Grosbeak, *Sialia wilsoni*, several Finches, among which *Fringilla cyanea* and *erythrophthalma*, and of about the same size a new species which at least in Audubon's Synopsis of the year 1839 is not enumerated and which I called *Fringilla comata* (2)"³ The (2) in the text refers to a note at the end of the chapter where a description of the Harris's Sparrow is given in great detail, and where the statement is made that "this bird nests in thickets along the shore of the Missouri River in the neighborhood of the mouth of La Platte River." The first volume of Maximilian's

¹ Notes from a letter of Edward Harris, Auk, 1895, p. 227, Geo. Spencer Morris.

² Reis im Innern Nord-Amerika. 2 Vols. Coblenz, 1839-1841.

³ Having access only to a reprint of this rare work in which the ornithological matter is largely deleted, I am indebted to Mr. Otto Widmann for this extract which he translated from the original publication.

journal, containing the record of his trip up the Missouri, was published in 1839, while volume two, covering the period when the Sparrow was taken, did not appear until 1841. Had he published both volumes simultaneously in 1839, his specific name *comata* would of course be current. It is interesting to note that though he took his first specimen just fifteen days after Nuttall had taken the type, and at a time when the bulk of the migrants had passed north, he had overlooked an opportunity of being the actual discoverer during the previous April, when he had been in the direct migratory path of the Sparrow at the season of its greatest abundance there.

Nuttall himself had overlooked an opportunity of discovering the bird twenty-four years earlier, and had his attention at that time been directed to birds as well as plants, he would no doubt have become acquainted with the species. Referring to the Journal of his companion,¹ John Bradbury, an English botanist, it is found that they passed through this region during the spring migration of 1810, and while Nuttall's absent-minded preoccupation in collecting plants was a standing joke among the voyageurs, Bradbury was somewhat more alive to ornithological possibilities, and has left many entertaining, and a few valuable notes on the better known birds. They had spent April 8th and 9th at Fort Osage, now Sibley, Jackson County, Missouri; and the writer knows of no more certain place to find Harris's Sparrows in early April than in the timber and thickets of this bottom land.

The Lewis and Clark party had passed through this region in June, 1804, and again early in September, 1806, and Thomas Say of the Long Expedition had been here in August, 1819. Maximilian was therefore the first ornithologist to enter the range of this species while the birds were in transit.

The last "discoverer" was Edward Harris, in whose honor Audubon gave the bird its vernacular name. The memorable voyage of Audubon and Harris, together with Bell, Sprague, and Squires, up the Missouri River in 1843 is too well known to require comment. A few quotations will serve in connection with the story of the Sparrow. On May 2 the party passed the point in

¹ Travels in the Interior of America in the Years 1809, 1810, & 1811 &c. By J. Bradbury. Liverpool, 1817.

Jackson County, Missouri, where Nuttall and Townsend had left the river nine years previously. Early the next morning they reached Fort Leavenworth. After leaving this post the boat was stranded on a sand-bar from 5 o'clock in the evening until 10 the next morning, giving the naturalists considerable time to do some collecting in the neighborhood. In his famous journal¹ of the voyage, Audubon says under date of May 4: "Friend Harris shot two or three birds which we have not yet fully established... Caught... a new Finch." And on the next day he states: "On examination of the Finch killed by Harris yesterday, I find it to be a new species, and I have taken its measurements across this sheet of paper." In volume seven of the octavo edition of his 'Birds of America,' where the new species taken on the trip are described, the remarks under the Sparrow are as follows: "The discovery of this beautiful bird is due to my excellent and constant friend Edward Harris, who accompanied me on my late journey to the upper Missouri River, &c., and after whom I have named it, as a memento of the grateful feelings I will always entertain towards one ever kind and generous to me.

"The first specimen seen was procured May 4, 1843, a short distance below the Black Snake Hills. I afterwards had the pleasure of seeing another whilst the steamer Omega was fastened to the shore, and the crew engaged in cutting wood.

"As I was on the look-out for novelties, I soon espied one of these Finches, which, starting from the ground only a few feet from me, darted on, and passed through the low tangled brushwood too swiftly for me to shoot on the wing. I saw it alight at a great distance, on the top of a high tree, and my several attempts to approach it proved ineffectual; it flew from one to another treetop as I advanced, and at last rose in the air and disappeared. During our journey up stream my friend Harris, however, shot two others, one of which proved a female, and another specimen was procured by Mr. J. G. Bell, who was also one of my party. Upon our return voyage, my friend Harris had the good fortune to shoot a young one, supposed to be a female, near Fort Crogan, on the fifth of

¹ Audubon and His Journals. By Maria R. Audubon. With Zoölogical and other Notes by Elliott Coues. 2 Vols. N. Y., 1900.

October, which I have figured along with a fine male. The female differing in nothing from the latter.

"All our exertions to discover the nest of this species were fruitless, and I concluded by thinking that it proceeds further northward to breed."

The work in which this supposed discovery was announced was published in 1844, four years after the second edition of Nuttall's 'Manual' appeared. Since this manual was the first American work on ornithology, excepting Wilson's, to go into a second edition, it was presumably widely known among ornithologists, and it is not easy to understand why Audubon and his coworkers were in ignorance of their lack of claim to Nuttall's Mourning Finch.

During the twenty-five or thirty years following Audubon's visit to the Missouri haunts of the Sparrow, practically nothing was learned of its life-history or distribution, and the few scattered specimens that were taken were all from the same general region. A specimen furnished by Lieut. Couch, taken at Fort Leavenworth on October 21, 1854, formed part of the material used by Prof. Baird in his epochal work in 1858, as did another taken at the same point on April 21, 1856, by Dr. Hayden, of Lieut. Warren's Pacific Coast Surveys party. Dr. Hayden took three other specimens further up the river in the same year. Dr. P. R. Hoy, who collected in the type region in 1854, took a specimen on May 7, and on May 13 met with a troop of fifteen or twenty. There are a few other records from the Missouri Valley and one from Texas (Dresser, Ibis, 1865) prior to the numerous ornithological activities of the early seventies. Dr. J. A. Allen, collecting in the interest of the Museum of Comparative Zoölogy, had his headquarters at Fort Leavenworth during the first ten days of May, 1871, and found Harris's Sparrows exceedingly abundant in the bottom timber on the Missouri side of the river. He added a few field notes on behavior, appearance, etc, and took a series of specimens. Baird, Brewer, and Ridgway state that from the time of its discovery in 1834 up to 1872 but little information had been obtained in regard to the Sparrow's general habits, its geographical distribution, or its mode of breeding, single specimens only having been taken at considerable intervals in the valley of the Missouri and elsewhere. In 1874 Dr. Coues brought together all the avail-

able data in his interesting article on the bird in 'Birds of the Northwest,' but was able to add nothing in determining the bounds of its habitat, which he gave as "Region of the Missouri. East to Eastern Iowa."

It was not until ten years later that enough information had accumulated to warrant an attempt at defining the limits of its range and the periods of its migration. This was done by the painstaking and accurate Wells W. Cooke in the first volume of 'The Auk,' in 1884. In this article, 'Distribution and Migration of *Zonotrichia querula*,' he was able only in a very general and indefinite way to give the western and southern extent of the range, but the eastern limits remain practically as he defined them.

In 1913 Professor Cooke noted the interesting peculiarity of the migration of the Harris's Sparrow in the interval that elapses after the first spring advance. He states¹ that the birds become common along the Missouri River in northwestern Iowa soon after the middle of March and yet it is not until early May that they are noted a few miles further north in southeastern South Dakota and southwestern Minnesota. He adds that the dates suggest the probability that these March birds have wintered unnoticed in the thick bushes of the bottomlands not far distant, and have been attracted to the open country by the first warm days of spring. This theory is borne out by the facts as observed by the writer in the Kansas City region. The birds are present in this vicinity during even the most severe winters, but keep to the dense shelter of the Missouri bottoms. During mild and open winters a few scattered flocks may even spend the entire season until spring in the hedges and weed patches of the prairie country.

This Sparrow has always attracted attention in the field by its large size and conspicuously handsome appearance, as well as by its sprightly and vivacious manner and querulous notes, but it has seldom been the subject of special notice in the literature of American birds. Its bibliography is chiefly confined to diagnostic listing in formal works on ornithology, brief annotations in faunal lists, and occasional mention in published field notes.

During the thirty-four years that have elapsed since Prof. Cooke's

¹ The Migration of North American Sparrows. Compiled by Prof. W. W. Cooke, chiefly from data in the Biological Survey. Bird Lore, 1913, p. 301.

article of 1884, the Sparrow, as a migrant, has become well known to ornithologists. Its narrow migration path, the center of which in the United States is approximately down the 96th meridian, has been worked out; the wide extent of territory covered by stragglers has been fully reported;¹ the food habits of the bird while on migration have been thoroughly investigated and the results published;² the nest has been seen once,³ and young just out of the nest have been collected,⁴ and the general region of the breeding ground itself is known to be where barren tundra meets the edge of the timber between Hudson Bay and Great Bear Lake. But the eggs yet remain to be discovered.

NOTES ON THE STRUCTURE OF THE PALATE IN THE ICTERIDÆ.

BY ALEXANDER WETMORE.

THE curious keel-like, angular projection found on the palate in the North American Grackles of the genus *Quiscalus*, recognized as one of the prominent characters distinguishing that group of Blackbirds, is a structure that can hardly fail to attract attention when the mouth is examined in freshly killed specimens, or in birds preserved in spirits. Recently, certain observations made in the field on these birds, which will be recounted later, recalled this structure to mind and the writer was led to make a somewhat detailed study of the palatal keel in the Grackles, and finally to examine the appearance of the palate in other members of the family *Icteridæ*. In these studies, carried on in the United States National

¹ The Status of the Harris's Sparrow in Wisconsin and Neighboring States. By Alvin R. Cahn. Bull. Wis. Nat. Hist. Soc., Vol. XIII, No. 2, pp. 102-108. Also in numerous lists and field notes published in 'The Auk,' 'Wilson Bull.' and the other bird journals.

² The Relation of Sparrows to Agriculture. By Sylvester A. Judd. Bull. Biol. Surv. No. 15, 1901.

³ Bird Records from Great Slave Lake Region. By E. T. Seton. The Auk, 1908, p. 72.

⁴ Biological Investigation of Hudson Bay Region. By E. A. Preble. N. A. Fauna No. 22. Washington, 1901.

Museum, there have been available suitable specimens representing all of the leading genera with the exception of *Clypeicterus*, *Ocyalus*, *Lampropsar* and *Macragelæus*. In all, one hundred and thirteen species belonging to thirty-one genera have been examined.

Study of skins of the genus *Quiscalus* shows that the palatal keel is developed as a compressed projection from the roof of the mouth, slightly behind the center of the commissure (Fig. 1). Viewed



Fig. 1. Head of *Quiscalus quiscula aeneus*. a Palatal keel (about natural size.)

from the side it is truncated in front, forming an angular projection that has a tendency to become toothed at the tip. Posteriorly it lowers to merge finally into the level of the palate. The anterior margin is sharp, and the posterior portion is thicker and stronger. The entire ridge is developed as a fold in the horny sheathing of the palate, and the surface of the premaxilla underneath is smooth and flat with no indication of a bony ridge to support the keel.

From the examination of museum skins it appears that the palatal ridge begins to develop in juvenile birds a short time before they leave the nest, at a stage when the body is well covered with feathers, and the incoming tail feathers have attained a length of 20 to 25 millimeters. In such birds the keel appears as a very slightly raised ridge that forms a distinct line on the palate. The bill at this time has reached about three-fourths of the length attained when the bird is adult, so that the beginning of this ridge appears to be located far forward, though it occupies the same position in relation to the external nasal opening that the fully developed keel does in the adult. In the dried skins the ridge is somewhat indistinct, but it is possible that it may be more readily apparent in living or recently killed specimens.

In birds that are almost fully feathered and that are about ready to leave the nest the bill has become stronger, the raised palatal line is heavier, and has a rounded anterior end that forms a marked projection and then continues to merge with the palate in front. In older specimens, able to fly but with the rectrices only 95 to 105 mm. long, the palatal ridge was better marked, being broad and strong basally and more slender toward the point. In a few of the specimens of this stage examined the cutting angle seemed well developed, but in others it was less strongly indicated. In birds that were fully grown but still in juvenal plumage the ridge was well developed but not so prominent as in adults. In some the basal portion was broad and rounded, verging toward the formation of palate found in the genus *Megaquiscalus*. In others the anterior cutting angle was more prominent but the entire ridge had only attained from one-half to three-fourths of its full height.

No one apparently has raised the question of the possible function of this keel, developed as described above, so that it seems proper to record here certain field observations made by the writer that indicate the use of this structure. As might be expected it serves in securing and preparing certain parts of the food. In December 1917, near Stuttgart in eastern Arkansas, during a time when the ground was covered by a light fall of snow, flocks of Bronzed Grackles were found feeding among small groves of a pin oak (*Quercus pagodaefolia*). The ground under these trees was nearly bare and the birds were working about searching for the small acorns that had fallen and were partly concealed under leaves and low plant growth beneath the oaks. The Grackles were tame and with a pair of binoculars it was an easy matter to watch them at close range. The acorns were picked up, held in the bill and pressed firmly against the keel on the palate, then released, turned slightly by means of mandibles and tongue, and then again gripped strongly. In this way the acorn was rotated until a line had been impressed entirely around the shell. With a little further manipulation the shell dropped off in two halves and the kernel was swallowed entire without further preparation, though frequently it was gulped down only after some effort. After watching one feeding flock for some time I clapped my hands sharply to startle them and then examined the ground where they had been at work.

Scattered among the leaves were many acorn shells, most of which had been cut in two in a line transverse to the longitudinal axis. Some had fairly smooth, clean-cut margins, while others were roughened and jagged. In searching through the leaves I picked up one acorn still intact that had been dropped by one of the birds, perhaps when the flock was frightened up, in which a line had been impressed entirely around the center. In this the impressions of the palatal keel were distinctly visible.

When attention was once attracted to this manner of feeding other incidents were noted in which the palatal keel was brought in play. On one occasion on the streets of Washington a Purple Grackle was observed attempting to split open a kernel of corn dropped from some passing dray. The bird held this grain in the slight notch near the center of the bill and pressed it against the angular keel. The grain proved refractory, as it snapped out several times, dropping 8 or 10 inches away, to be seized and again compressed. Watching until it had been dropped I frightened the bird and secured the kernel of corn. On one side four grooves impressed in the hard outer surface were visible showing where, and with what force, the sharp keel had been applied.

Apparently the palatal ridge develops with the gradual growth of the bill, and becomes fully functional shortly after the immature bird is left by its parents to its own resources in securing food. It seems to be fully grown in all by the middle of September. In many adult specimens the ridge shows signs of heavy wear from the nearly constant use to which it is put. In some the cutting angle was well rounded in front from constant abrasion, while in others the anterior margin had become irregular and broken. In one specimen the thin lower margin of the compressed keel was entirely worn away, leaving a low rounded projection in which the two sides of the fold by which the keel had been formed were clearly visible, with a line of separation between them. It was interesting to note that the palatal ridge was usually well worn in old adults, taken in late fall or early spring, belonging to the northern races (*Quiscalus q. quiscula* and *Q. q. æneas*) while little or no wear was apparent in similar specimens of the southern form (*Q. q. aglæus*) from South Carolina and Florida. The data available from the examination of a small number of stomachs of this

form from Florida show a preponderance of insects and fruits with very little mast or grain, a fact of interest, but one that is not fully substantiated as the material available is small.

Among near relatives of *Quiscalus quiscula* a slightly developed palatal ridge was encountered in *Megaquiscalus macrourus*, where the projection was broad and well rounded posteriorly, and narrow in front with the lower margin acute, forming a sharp keel. In some specimens seen this keel was slowly reduced until it merged smoothly with the palatal surface in front. In others the anterior margin was obtusely declivous. The obtuse anterior cutting angle projected below the margins of the tomia for nearly a millimeter in a few individuals, and in these occasional specimens the resemblance was striking to those bills of *Quiscalus* in which the ridge was most poorly developed. Juvenile specimens of *Megaquiscalus m. macrourus* from Fort Clark, Texas, that had been collected just after they had left the nest, had the palatal ridge already well indicated though only about one-half developed. In the slender-billed forms known as *Megaquiscalus tenuirostris* and *M. nicaraguensis* the palatal keel was much as in *M. major* though slighter and less pronounced.

In Blackbirds belonging to the West Indian group known as *Holoquiscalus* a raised line was also more or less developed. In general the growth was similar to that in *Megaquiscalus* as the posterior portion was broad and rounded, while anteriorly the ridge was narrowed and the lower margin became acute. There is some variation in the size of this anterior portion; in a few the crest is obtusely declivous in front, approaching the condition found in *Quiscalus*, but never with the keel produced so that it projects below the plane subtended by the cutting edges of the tomia.

The discovery of a peculiar knoblike process on the palate of the mexican orioles belonging to the species *Icterus gularis* was one of the really surprising discoveries made during a more or less cursory examination of the palate in various species and genera of *Icteridæ* picked out at random, and it was the finding of this structure in an Oriole that led to a detailed examination of all of the material available. In *Icterus gularis* the palatal ridge is from 1.2 to 1.5 millimeters high at its anterior end (Fig. 2). The entire structure is broad and somewhat flattened. The ventral surface is slightly

rounded, the sides slightly sloping, the sides and lower surface joining at a sharp angle. In front the ridge is abruptly truncated at its ventral margin where there is sometimes a slight tooth or projec-



Fig. 2. Head of *Icterus gularis yucatanensis*. b. Palatal knob (about natural size.)

tion. Below this point the anterior surface slopes abruptly, and then passes over into the roof of the palate. The ridge is about two millimeters broad, and there is a slightly indicated raised line on the ventral surface for three-quarters of its length behind. From this description it may be seen that this blunt projection is entirely different from the sharply keeled ridge found in *Quiscalus*.

Examination of other orioles shows that *Icterus gularis* stands alone in respect to this development as there is nothing found in other species that approaches it save for a broad, low, rounded projection, slight but distinct, that is found on the palate in *Icterus xanthornus*. In *Icterus laudabilis* and *I. prothemelas* there is a very slightly raised median ridge developed on the posterior part of the roof of the mouth. In twenty-eight other species belonging to this genus the palate exhibits no peculiarities worthy of mention. This structure in the bill in *Icterus gularis* is constant in its presence, and serves as a trenchant character distinguishing it from other orioles, or in fact from any other members of the *Icteridæ* that have been available for examination. The differences pointed out above, together with others of lesser importance, seem to be of generic value. It is therefore proposed to recognize for this species the genus name

Andriopsar Cassin.¹

Type.—*Ps[arocolius] gularis* Wagler, Isis, 1829, p. 754 (type locality, Tehuantepec, Oaxaca).

Diagnosis.—Medium-sized *Icteridæ* with short, heavy bill; a prominent knob-like projection on the posterior median portion of the palate, broad and somewhat flattened in general form, with abrupt sides, truncated in front, sometimes with a tooth or notch at the anterior ventral angle, about 2 millimeters broad and from 1.2 to 1.5 millimeters high in front; depth of culmen at base nearly equal to one-half length of culmen (varying from slightly more to slightly less); tarsus slightly longer than culmen from base; middle toe with claw equal to two-thirds, or slightly more, of length of tarsus.

One species in which three subspecies have been described is at present known to belong in this genus. These will stand as follows:

Andriopsar gularis gularis (Wagler)

Andriopsar gularis tamaulipensis (Ridgway)

Andriopsar gularis yucatanensis (Berlepsch)

At present there is no information on the feeding habits of these orioles available but it seems certain that they will show some striking peculiarity in choice of food or in manner of securing and handling it when the life history of the species is better known.

In conclusion I desire to give a brief summary of the condition of the palate in other *Icteridæ* where comment is necessary. In *Euphagus carolinus* and *E. cyanocephalus* there is a slight elongate ridge of low elevation, rounded posteriorly more acute in front, and not projecting as far as the level of the tomia. This raised line is slightly more pronounced in *E. carolinus* than in *E. cyanocephalus* in spite of the fact that the latter has a heavier, stronger bill. The species known as *Ptiloxena atrovioacea* has an elongate, narrow, slightly elevated ridge on the posterior portion of the palate, rounded behind and more or less acute in front, but with too low an elevation to be considered a highly specialized structure. Sumichrast's Blackbird (*Dives dives*) has a palatal structure somewhat resembling that of the genus *Holquiscalus* save that the entire ridge is shorter.

¹ Proc. Acad. Nat. Sci. Philadelphia, Vol. XIX, 1867, p. 49.

With regard to others, *Tangavius æneus* has a slight ridge, that becomes stronger behind, extending for two-thirds the length of the palate. A similar ridge in *Molothrus badius* is less developed at its anterior end than in the preceding genus. In *Molothrus fringillarius* (one specimen only examined) this ridge is still less in development. In *Molothrus ater*, the cutting edges of the tomia do not extend below the level of the palate, and there is a rounded swelling behind the center; in *Molothrus atronitens* only a very slight ridge is present, and finally in *M. rufo-axillaris* there is no peculiarity worthy of mention. *Nesopsar nigerrimus* shows a well marked rounded ridge on the posterior part of the palate that merges into the anterior surface without becoming produced as an angle. *Xanthopsar imthurmi* shows a slightly developed posterior ridge, while in *Agelaius phæniceus* (including *gubernator*) there is a very faint swelling at the posterior end of the palate, that becomes much more pronounced in *A. tricolor*. *Agelaius thilius* and *A. icterocephalus* show a faintly raised median line, that in the latter species is broadened and rounded posteriorly. *Amblyramphus holosericeus* has a long, low, keeled median ridge, and in the three species of *Sturnella* there is an elongate keel, that is rounded behind and acute in front. In *Curæus aterrimus* the palate is on a level with the edge of the tomia, and has a low rounded bulge on its posterior surface. *Trupialis militaris* and *T. falklandicus* have a slight rounded posterior ridge, that is absent in *T. bellicosa* and *T. defillipi*, and finally in *Gymnomystax melanicterus* there is a low, narrow, keeled ridge on the posterior part of the palate, that merges gradually into the surrounding level in front. None of the other species seen present any marked peculiarities.

THE CROW IN COLORADO.

BY W. H. BERGTOLD.

A STUDY of the technical status, and distribution of the Crow in Colorado discloses, at once, an interesting, and a peculiar situation.¹

The Crow was first recorded in Colorado, so far as I am able to learn, by Aiken (1), who reported it in this State in 1872 under the name *Corvus americanus*; thereafter several other writers mentioned the bird, as having been found in Colorado:— Ridgway in 1877 (2), Stephens in 1878 (3), and Drew in 1881 and 1885 (4), all using the same name employed by Aiken.

Ridgway (5) erected the subspecies *hesperis* in 1887, at that time giving its range substantially as outlined today by the A. O. U. 'Check-List'; the validity of this subspecies was not admitted by the A. O. U. Committee until July, 1908 (6). In his original description of the new subspecies (*hesperis*) Ridgway did not state how many skins he examined nor whence they came, but gave as the eastern limit of the new subspecies "east to the Rocky Mountains," while in his later account (7) of *hesperis*, for which he utilized twenty-three skins for study purposes, he carefully qualifies the eastern limit by adding "from the Eastern portion of the arid region?" It is to be noted that he did not definitely mention Colorado as being included within the *hesperis* area; in his coincidental review of the literature possibly related to the new subspecies, however, all citations of previous records of Colorado Crows are grouped under the literature of subspecies *hesperis*. This probably was done because he did not have time to sift out the records relating to the eastern slope from those of the western slope so as to place them under the literature relating to the individual subspecies. So far as Colorado is concerned in this question, Ridgway probably did not take this matter up in detail because

¹ My thanks are due to the following friends, who made it possible for me to study crow skins from parts of the State not covered by my own collection; L. A. Adams, A. H. Folger, J. D. Figgins, F. C. Lincoln, E. R. Warren, Witmer Stone, and to my various friends for permitting me to quote them in the body of this paper.

there is not a single Crow skin in either the National Museum, or in the Biological Survey Collections, which came from Colorado.

Most, if not all, of the writers who thereafter, directly or indirectly, touched on the Crow's position in Colorado, made their diagnoses as to subspecies on regional grounds alone.

In the interval between Ridgway's erection of subspecies *hesperis*, and its admittance to the A. O. U. 'Check List' (1887 to 1908) Morrison (8) and Drew (19) were, so far as I know, the only writers to record the Crow in Colorado, Morrison mentioning it first, as *Corvus frugivorus* and the second time (9) as *Corvus americanus*, while Drew entered his record under the latter name.

Cooke's 'List of the Birds of Colorado' was published in March 1897, and in it he grouped all of the previous Colorado Crow records, regardless of region, under the name *Corvus americanus*; notwithstanding that Ridgway had ten years previously separated the eastern and the western Crows, Cooke (22) logically disregarded this action, because he followed the A. O. U. 'Check-List' in assembling his 'List of Colorado Birds.' In all the various supplements which Cooke published to his list (the last being in 'The Auk' of October 1909) he did not change his early naming of the Colorado Crows, allowing them to stand as *Corvus americanus* or its synonym. I am confident that he recognized the probability of there being two subspecies in the State, but wisely refrained from opening the question because of lack of material available for definite determination. Furthermore I am given to understand that there are no Crow skins in the collections of the State Agriculture College at Fort Collins, where Cooke was located when he compiled his 'List,' which fact would lend support to the idea that his omission to mention the possibility of both the Eastern and the Western Crows being found in Colorado was due to his unwillingness to pass judgment on a question without the support of definite material or data.

In his 'The Present Status of the Colorado Check-List of Birds' (10), Cooke again was silent as to the presence of subspecies *brachyrhynchos* or of *hesperis* or of both within the confines of Colorado, though at least three writers (11), (12), (13), had previously mentioned the Colorado Crow in their respective papers, as being *hesperis*; Cooke was too careful and experienced an ornithologist

to have overlooked these records and I am sure his silence was judiciously intentional and premeditated.

It thus appears that between 1887 and 1912 the Crows of Colorado had been recorded by some observers, so far as subspecies were concerned, as *brachyrhynchos*, and by others as *hesperis*, but so far as I know and am able to learn, none suggested or recorded that these two subspecies coexisted in the State.

I am inclined to believe that Sclater's (13) designating the Colorado Crow as *hesperis* was made on purely geographical grounds, because the collection then at his command, (that at Colorado College, Colorado Springs) contains but one crow skin, a partial albino, which proves to be, under examination, subspecies *brachyrhynchos*. E. R. Warren allows me to state that he has no Crow skins in his collection, and that he made his subspecific diagnosis of *hesperis*, for the birds seen near Bulah, Colorado, on geographic grounds only. In later records Warren (14) wisely refrains from trying to decide as to the subspecies, when listing the Crows seen in Montrose County, and in northern Colorado, mentioning the birds merely as *Corvus brachyrhynchos*, and Henderson (18) did likewise in his Boulder County List.

I do not know on what grounds Hersey and Rockwell (11) made their statement that subspecies *hesperis* was to be found on the eastern slope of the Rockies.

Since Cooke's last word on our Colorado avifauna, two more writers have given the Crow as a species found within the State, each listing it as *hesperis*, and both records are for the Atlantic slope. I am permitted by F. C. Lincoln (15), the first of these two writers, to say that he did not take any Crows in Yuma County, and that he made his subspecific diagnosis on geographic grounds alone. It is now, unhappily, impossible to determine what led Betts (16), the second of these two writers, to conclude that the Boulder County Crow was *hesperis*. I do not know whether he collected specimens in Boulder County; but Junius Henderson informs me that Betts sent crow *eggs* to the National Museum. But he probably did not send skins for, as has already been said, there is not a Crow skin in the National Museum collection, from Colorado. The internal evidence (18) points to the belief that Betts too, recorded the Boulder County Crow as *hesperis*, on geographic grounds alone.

Crows seen by Warren (17 and 20) in other parts of the State are given as subspecies *brachyrhynchos*, but again named on regional grounds only.

From the foregoing it appears that the Crows of Colorado were listed, principally as *Corvus americanus* up to the acceptance of subspecies *hesperis* in the A. O. U. 'Check-List,' and since then variously listed as *Corvus brachyrhynchos*, *Corvus brachyrhynchos brachyrhynchos*, or *Corvus brachyrhynchos hesperis*, but, to repeat, so far as I can learn, in no instance have any of the last two kinds of records been made on skin determinations. This statement is based on a study of the published records, and on a considerable relevant correspondence with my associates throughout the State; if I err the statement is open and subject to correction.

The western third of Colorado lies on the Pacific slope, and the eastern two-thirds on the Atlantic and on both of these slopes the Crow has been detected, and variously recorded as to subspecies. The A. O. U. 'Check-List' does not speak of *hesperis* actually extending eastward to the Rocky Mountains, but Mr. Ridgway, in a recent communication said to me "I feel quite sure that any Crow found west of the Divide in Colorado would be *C. b. hesperis*. On the other hand, those found on the eastern side would almost certainly be *C. b. brachyrhynchos*."

I am fortunate, not only in having material in my own collection, which substantiates Ridgway's belief, but in also having had access, thanks to my obliging friends, to specimens and data which also show that his belief is essentially correct.

I have been able to study fourteen Crow skins from the eastern side of the Rockies in Colorado, six males and eight females; of the males three are typical *brachyrhynchos*, two are clearly *hesperis*, and the last is mainly *brachyrhynchos*, but with weaker bill and tarsus than is ordinarily found with that subspecies. It is of interest to note that this last specimen was taken in Weld County close to the locality whence came the two previously mentioned *hesperis* skins. It is much more difficult to allocate the females of this group of skins; however four are more typically subspecies *brachyrhynchos* than is another female in my collection which I collected many years ago in New York, and another female is also of this subspecies, but with a weak bill, while the remaining three

are too near the dividing line to be definitely located as to subspecies, all showing characters of one or of the other of the two forms under study, in varying degrees of intensity.

I have been able to study but one Crow skin from the western slope in Colorado, to-wit, a skin in my collection, which was taken at Ignacio, Colorado, in October, 1917, by my friend and colleague, Dr. Walter L. Mattick; fortunately it is the skin of a male, and is typical *hesperis*.

We are now on firm ground; those skins from the eastern slope which are most likely to be characteristic of a given subspecies, to-wit, males, show that both *brachyrhynchos* and *hesperis* are to be found on that slope, and the Ignacio skin proves that *hesperis* occurs on the western slope.

Hence one can say now that both *Corvus brachyrhynchos brachyrhynchos* and *Corvus brachyrhynchos hesperis* are to be included in future lists of Colorado birds.

The common Crow is normally a bird of moderately large and fairly dense timber, a growth found in Colorado only along the larger streams and in the mountains; if one plot the Crow stations of Colorado on a map, it at once becomes patent that most, if not all, of these stations are to be found along the courses and headwaters of the State's larger streams. This fact seems to lend color and support to the idea that subspecies *brachyrhynchos* probably penetrated Colorado from the east by following the larger streams towards the mountains, for it is along these rivers that one finds trees to the Crow's liking, and too, Crows are increasingly more common as one travels eastward along these watercourses. It would seem reasonable to believe that along similar natural "crow" highways *hesperis* would find its way eastward from the Pacific side into Colorado.

The smaller size, alone, of *hesperis*, often makes it distinguishable in the field, a fact which first came to my attention while in the "hills" on the Gila River in New Mexico, in 1906. During the same year I saw a considerable flock of Crows immediately south of Antonito, Colorado; I was then again impressed by the smaller size of these southern Colorado and New Mexico Crows. I now believe these Antonito Crows were subspecies *hesperis*; Antonito is on (or very close) to the Rio Grande River, which drains part

of the Atlantic-Gulf of Mexico watershed, part of which watershed forms the western portion of Texas, an area included in the present known range of *hesperis*. It does not seem unreasonable to believe that *hesperis* works its way from western Texas, up along the Rio Grande, finally reaching the vicinity of Antonito, and also the San Luis Valley. In support of this latter view I am permitted to say that Mrs. Jesse Stevenson of Monte Vista, Colorado, recently saw a Crow for the first time in twenty-five years in this valley, and was at once impressed with its small size as compared with those she formerly studied in the East.

As mentioned above, it is clear that *hesperis* occurs on both sides of the Rocky Mountains in Colorado. Now one must ask if subspecies *brachyrhynchos* occurs on the western slope as well as on the eastern slope.

I cannot even inferentially decide whether or not subspecies *brachyrhynchos* reaches the west side of the Rockies in Colorado; there is but one reference to it in literature, known to me, as occurring on the western slope of Colorado, to-wit, that by Warren (20) who listed the Crows of Gunnison County as subspecies *brachyrhynchos*, doing it, however, as a matter of expediency only, as he took no specimens. If this subspecies does range to the west side of the Rocky Mountains in Colorado, I believe it will be found in northwestern Colorado, coming in as a straggler from Wyoming. Records of the Crow from northwestern Colorado and southwestern Wyoming are lacking (21), or at least unknown to me.

One can hazard the guess that the Crows of southeastern Colorado are subspecies *brachyrhynchos*, but *hesperis* may also be found in that area, coming in as an infiltration from Texas. I am convinced that *hesperis* works its way up from the Lower Rio Grande Valley, along the eastern foothills, finally reaching, as we now know, as far north as Weld County.

It is highly desirable that a considerable series of Crow skins be collected from Colorado, embracing specimens especially from the western portions of the State, and also from the southern border, to the end that the exact distribution of subspecies *brachyrhynchos* and *hesperis* be definitely delimited for Colorado.

RÉSUMÉ.

I.—It can now be said categorically that the Crow occurs in Colorado in the guise of two subspecies, viz., *brachyrhynchos* and *hesperis*, both being found on the eastern slope, and only the latter on the western slope of the Rocky Mountains.

II.—The above conclusion stands if my determinations of the skins I have studied be correct; if my determinations be incorrect they show that the criteria by which these two subspecies are differentiated, are too subtle and refined for an ordinary ornithologist like myself to grasp and apply, or that the described differences between these two subspecies break down with the Crows found in Weld County.

Measurements of *hesperis* skins (8: millimeters).

Locality	Sex	Wing	Tail	Bill		Tarsus
				Length	Depth	
Weld Co.	♂	303	172	49	18	57
" "	♂	312	178	45	17	56
Ignacio	♂	317	183	44	17	53

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WINTER ROBINS IN NOVA SCOTIA.

BY HARRISON F. LEWIS.

NEARLY every winter a few stray Robins are observed in Nova Scotia, and occasionally a small flock has been noted as present at that season, although my personal observations here during the six winters immediately previous to that of 1917-18 do not include a half dozen individuals of this species. During the winter of 1917-18, however, Robins were reported in such large numbers and over so great an area as to constitute an occurrence quite unique in the recorded ornithology of the province.

One Robin was seen by me about December 20, 1917, but unfortunately, the exact date of the observation was not recorded. In the last week of January several reports of Robins seen near Halifax were noted, and in the first two or three days of February numerous additional reports were received and I saw a few birds of this species myself. It quickly became evident that Robins were being observed near Halifax, at least, in numbers very extraordinary for the season.

As soon as it was realized that the occurrence was of an unusual character, steps were taken to secure a record of it. It is much to be regretted that, owing to the fact of the casual appearance of Robins here in ordinary winters, this realization was not reached

a few days sooner, for, in that case, attempts to obtain records from others would, no doubt, have been more successful, and my own observations would in all probability have been more extensive. It so happened that, during the time when the Robins were most abundant in this immediate vicinity, military duties, always exacting, became unusually strenuous, and for a while little thought or effort could be given by me to the birds. Nevertheless, as many observations as possible were made, and the observations of those with whom I came in contact were recorded. At the same time, I endeavored to obtain information from other parts of the province, and to that end sent numerous inquiries to those whom I knew to be interested in birds or who were likely to be interested.

Here I was greatly hindered by the present condition of the observation and study of birds in Nova Scotia. I was forced to realize that there are less than a dozen active bird students in the province, and, although there are doubtless many more than that who would note with spontaneous interest the occurrence of Robins here in midwinter, there is no organization by which I could learn of the identity of such individuals when personally unknown to me, or through which I could get into communication with them. I was forced to depend very largely upon blind guess, while following up every clue which I found, and the resulting observations, though fairly numerous, are no doubt but a small part of what might have been obtained had there been, for instance, even one trained and active observer in each county. This fact should be kept in mind when considering the records obtained as evidence of the degree of abundance of the robins.

To all who contributed observations or information concerning the Robins I wish to express my thanks. I am also under obligation to the Amherst 'News-Sentinel,' the Truro 'Daily News,' and the Glace Bay 'Gazette' for publishing, on the initiative of their respective editors, requests that information concerning winter Robins be sent to me. These requests were the means of providing me with no inconsiderable amount of valuable data.

It may be argued that observations learned of in this way are untrustworthy and therefore valueless, for, of necessity, I am not personally acquainted with many of those who so kindly furnished me with information, and I cannot definitely vouch for the skill

in bird observation of each and every one of them. It was considered, however, that, in a case of this kind, such observations might be accepted, at least as evidence tending to show a certain general condition, for nearly every intelligent adult is able to identify a Robin. Certainly, no species here is capable of more accurate popular identification, for even the well-known Crow is confused with the common Northern Raven by all but a few.

The observations obtained are summarized in the following list, which shows, in each case, the date of the observation, the locality in which it was made, the name of the observer or source of information, and the exact or approximate number of birds seen. Care has been taken to indicate any indefiniteness, so that no data are recorded as definite which were not so reported to me or observed by me. Every endeavor has been made to have the observations here recorded as definite as possible, but a number of somewhat indefinite observations are included because they are important, either geographically or temporally, in a report of this nature. With the exception of those observations where names of newspapers are quoted, and of one observation reported by Prof. H. G. Perry and one reported by Mr. W. Archibald, the name of the actual observer accompanies each observation.

- December 20 (about). Bedford, N. S. (H. F. Lewis) 1.
December 27. Sydney Mines, N. S. (Miss Dawe) 1.
January 1. Ohio, Yarmouth, Co., N. S. (Mr. Cann) about 12.
January 1. Yarmouth, N. S. (Mr. H. B. Vickery) 1.
January 5 (about). Upper Musquodoboit, Halifax Co., N. S.
(Miss Leslie) "large flock."
January 16. Glace Bay, N. S. (Mr. A. A. McDonald) 12.
"January." Bridgetown, N. S. (Mr. H. F. Williams) "several."
Daily January 20–February 6. Brookfield, Colchester Co., N. S.
(Mr. Frank Little) 2.
January 24. Dutch Village Road, Halifax, N. S. (Mr. A. E. Brooks) 1.
"Last of January." Belmont, Colchester Co., N. S. (Miss Ruth Lear) 4.
January 26. Sydney, N. S. (Rev. T. A. Rodger) 12.
January 26. Dartmouth, N. S. (Mr. J. E. Smallman) 12.

- January 27 (about). Yarmouth, N. S. ('Yarmouth Herald' of January 29) "several flocks."
- January 27. Dartmouth, N. S. (Sgt. R. Smallman) about 8.
- January 27 or February 3. Pugwash, N. S. (Miss B. Fullerton) 1.
- January 27. Point Pleasant Park, Halifax, N. S. (Sgt. A. Cossham) 1.
- January 27. William St., Halifax, N. S. (Miss H. Paul) 1.
- Daily, January 27-February 8. Truro, N. S. (Prof. L. A. DeWolfe) 2.
- January 28 (about). Sydney, N. S. (Mr. Geo. McLeod) "several."
- January 28. Sydney, N. S. (Rev. T. A. Rodger) 20.
- January 28. Amherst, N. S. (Miss D. Hurtley) 1.
- January 31. Truro, N. S. (Miss E. Waller) 1.
- Through January and first half of February. Truro, N. S. (Miss L. Schurman). 3-4.
- February 1 (about). Pugwash, N. S. (Mrs. McIvor) 2.
- February 1 (about). Carleton, Yarmouth Co., N. S. (Miss Mary Wyman) 1.
- February 1. Yarmouth, N. S. ('Yarmouth Telegram' of February 1) several (killed by owl).
- February 1. Dartmouth, N. S. (H. F. Lewis) 2.
- February 2. Bedford, N. S. (H. F. Lewis) 1.
- February 3. Jubilee Road, Halifax, N. S. (Sgt. W. J. Alsop) 3.
- February 3. Young Av., Halifax, N. S. (Sgt. H. P. Eisner) 1.
- February 3. "Africville," Halifax, N. S. (Sgt. A. G. Cossham) 1.
- February 3. Ocean Terminals, Halifax, N. S. (Mr. C. Churchill) 25-30.
- February 3. Kempt Road, Halifax, N. S. (H. F. Lewis) 1.
- February 3. "The Common," Halifax, N. S. (Sgt. J. A. Fraser) 1.
- February 3. Dartmouth, N. S. (H. F. Lewis) 1.
- February 4. Dartmouth, N. S. (H. F. Lewis) 1.
- February 5 (about). Wolfville, N. S. (reported by Prof. H. G. Perry) 12-18.
- February 5. Gottingen St., Halifax, N. S. ('Evening Mail' of February 14) 1.
- February 6. Truro, N. S. (Prof. E. C. Allen) 2.
- February 8. Loganville, Pictou Co., N. S. (Mr. Wm. McNeil) 4-5.
- February 8. South End, Halifax, N. S. (H. F. Lewis) 5.
- February 9. Truro, N. S. (Prof. E. C. Allen) 1.
- February 11. Truro, N. S. (Prof. E. C. Allen) 1.

- February 12. Dartmouth, N. S. (H. F. Lewis) 1.
 February 13 (about). Glenwood, Yarmouth Co., N. S., (Mr. R. M. Sargent) about 12.
 February 13 and for some time previously. Pictou, N. S. (Mr. A. Scott Dawson) 30-40.
 February 16. Amherst, N. S. (Mrs. H. T. Holmes) 2.
 February 18. Dartmouth, N. S. (H. F. Lewis) 1.
 "All winter," previous to February 19. Wolfville, N. S. (Mr. Gormley) "a few."
 February 21. Antigonish, N. S. (Mr. R. Archibald) 1.
 February 24. Pictou, N. S. (reported by Mr. W. Archibald) "several."
 February 25. 'The Common,' Halifax, N. S. (Mr. H. B. Vickery) 1.

It will be noted that the points from which Robins are reported are scattered throughout the province, from Sydney and Glace Bay in the east to Yarmouth in the west, and from Amherst, on the New Brunswick boundary, to places such as Halifax and Glenwood, on the south shore. The intervening parts of the province are fairly well represented in the observations, so that these may be held to indicate a condition general in Nova Scotia. I am persuaded that the fact that there are considerable areas, such as the three counties of Shelburne, Queens, and Lunenburg, from which no observations are recorded, is due to the absence of observers there, or to my failure to get into communication with any who may have been there, rather than to the absence of winter Robins from those regions. This belief is strengthened by the fact that, in every place in the province where trained observers were known to be situated, winter Robins were reported by them.

In the case of observations made in Halifax I have recorded the street or part of the city where the birds were seen, so as to show that the distribution in the Halifax area was general, and that it is improbable that the same few birds were being recorded repeatedly by different observers. This is particularly important in connection with the observations made on February 3, on which date many observers saw Robins in and near Halifax. No two of the observations recorded for that day are from the same part of the city. It should be borne in mind, also, when considering these

records, that Dartmouth and Halifax are really parts of one area, for they are on opposite sides of Halifax Harbor, less than a mile apart.

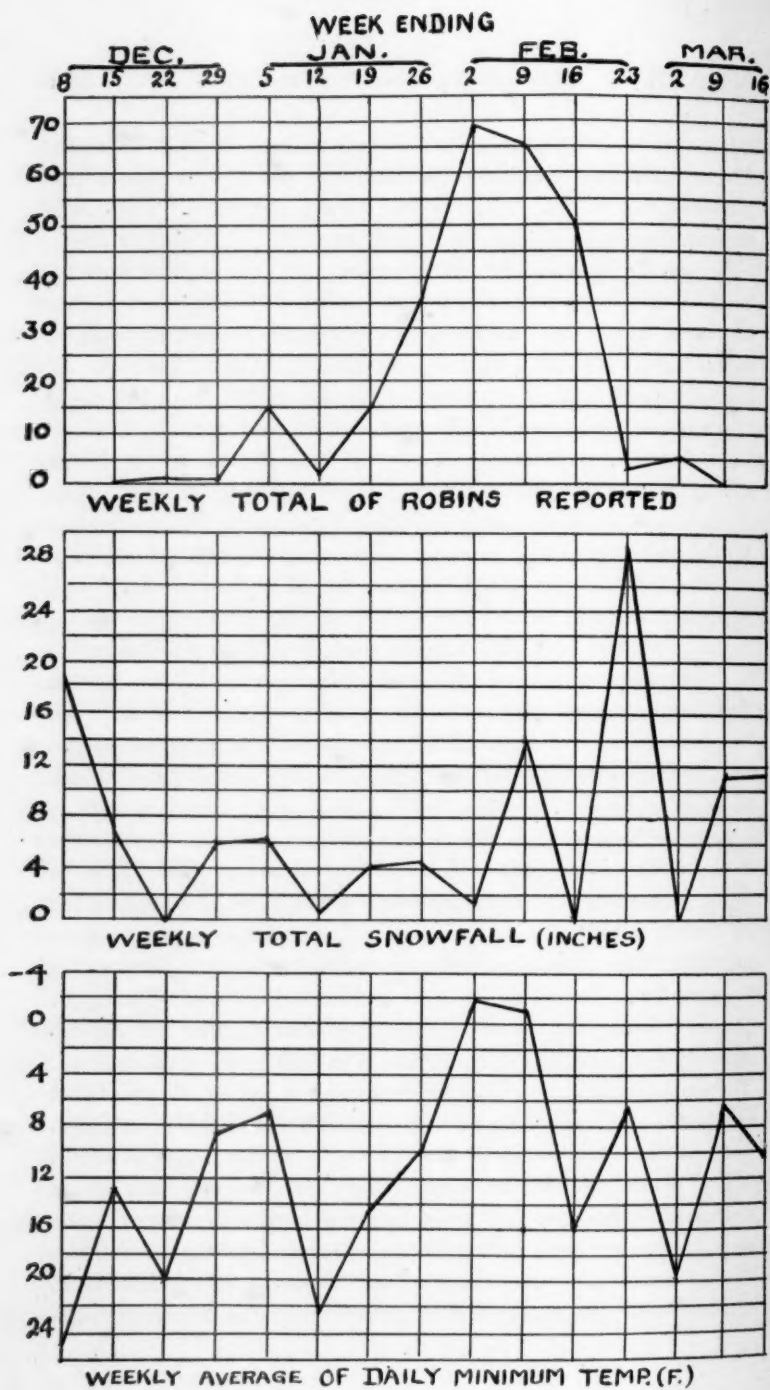
With reference to the observations made in Halifax and Dartmouth, I wish to add that the number of indefinite observations received or learned of was very great. In the presence of a very considerable number of definite observations from that area, it was not thought best to make use of these indefinite ones, but a very fair idea of their nature and extent was gained through conversations, intentional and accidental, and through newspaper reports. After considering the matter carefully, I am of the opinion that a conservative estimate would place the number of adults who, during the winter of 1917-18, saw Robins in Dartmouth or Halifax at forty per cent of the resident adult population of all classes in the two communities. As scarcely any of these people were intentionally looking for Robins, this would indicate a degree of abundance extremely high for the time of year.

Mr. A. Scott Dawson, in his letter of February 13 concerning the large flock of Robins reported by him as remaining for some time near his residence at Pictou, says, "They spend the most of their time on the willows, and are picking at the bark; no doubt they are getting insects, etc., there. They also visit the haw bushes and the holly, as they eat both haws and berries." Those seen by Mr. Wm. McNeil at Loganville on February 8 are said to have been seeking food on a manure pile. Mrs. H. T. Holmes reports that the two Robins seen by her at Amherst on February 16 "were busily picking among some hay in search of food." Rev. T. A. Rodger states that those seen by him in Sydney were fed by his children with crumbs, and Mr. Frank Little, writing from Brookfield on March 25, says, "... this one [winter] between January 20 and February 6 we fed from our back door two Robins and a flock of nine Pine Grosbeaks. It was very cold here then and both came daily between those dates." Several of the birds seen by me were in hawthorn trees, and were feeding on the fruit, which hung on the trees in considerable quantities. The two Robins seen by me at Dartmouth on February 1 were hunting along the upper edge of a low, sandy bank, where some plants of the upland cranberry remained uncovered by the snow. When I examined these plants,

a few minutes later, I could find no fruit upon them. On February 12 I saw one Robin in a mountain ash tree, planted for ornamental purposes, but it flew from the tree at my approach. There was no fruit remaining on that tree.

In several instances it was reported that the Robins were as bright and as lively as in the springtime, but the birds seen by other observers were stated to be slow and stupid, as though weak or numb. Miss Dorothy Hurtley, in a letter dated February 20, says of a Robin seen in Amherst on January 28, "I thought I could catch it, as it was stupid with cold, but it evaded me by flying a little way ahead of me." Nearly all the Robins which I saw appeared to be very loth to move, and when finally "flushed" their flight was slow, short, and uncertain. Besides the killing of some Robins at Yarmouth by an owl, two instances of Robins dying were reported. In a letter dated February 19, Mrs. H. T. Holmes says of Robins recently seen by her at Amherst, "One, while flying, seemed to falter and flutter to the ground. Hoping to revive it, it was brought in, but soon died, possibly starved." Miss Bertha Fullerton, of Pugwash, states, in a letter dated February 26, "My sister is one of the teachers here, and one morning when she went to school there was a frozen Robin on her desk. Likely some of the boys had put it there."

In order to present as clearly and briefly as possible the fluctuations in the number of Robins reported as observed at different times during the past winter, and to facilitate comparison with the local meteorological conditions at any part of that season, I have prepared three graphs, which are shown herewith. They cover the time from December 2, 1917, to March 16, 1918. The upper graph indicates, as closely as possible, the number of Robins reported to me as seen in Nova Scotia in each week of that period. The second graph shows the total number of inches of snowfall at Halifax for each week of the time considered, and the third graph presents the weekly averages of the daily minimum temperatures (Fahr.) at Halifax. To facilitate comparison, this last graph has been inverted, so that lower temperature is represented in the same way as is heavier snowfall or a greater abundance of Robins. For the data used in preparing the two lower graphs I am indebted to Mr. Fred P. Ronnan, official meteorological observer at Halifax.



From the first graph it is readily apparent that few Robins were noted in the province prior to the middle of January. After that time the number seen increased rapidly, reaching its maximum about February 1, and decreasing a little more gradually until about February 20, after which date few Robins were seen. On account of the scarcity of observers, before mentioned, this line does not show the total number of Robins which were present about the inhabited parts of Nova Scotia in any week, nor can its relation to such total numbers be readily determined. It does serve, however, as a moderately correct indicator of the relative abundance of the Robins about the inhabited parts of the province in one week as compared with another.

The graph indicating the weekly snowfall appears as a line of abrupt changes and sharp angles, showing that the variation in the snowfall from week to week was very marked. Somewhat contrary to expectation, no relation between this line and the Robin graph appears to be traceable. It is possible that, if the average depth of snow on the ground in each week could be depicted graphically, the line thus formed would show more direct relation to the weekly abundance of Robins, but, unfortunately, no data from which such a graph could be prepared are available.

The temperature graph appears to correspond very well with the slopes of the Robin graph, especially in the part of the winter prior to February 20. A period of low temperature in the week ending January 5 is found to correspond with a noticeable increase in the number of Robins reported, while higher temperature during the week ending January 12 accompanies a decrease in the number of Robins seen. From January 12 to February 2 increasingly lower average temperatures are contemporaneous with an increasing abundance of Robins observed, and the extremes of both graphs are reached in the same week. In the week ending February 9 both lines fall slightly lower, and in the next week there is a very considerable decline in both. From that time on the relationship appears less close, for a reason hereinafter stated. Such a close correspondence between the two lines as has been pointed out, however, seems most unlikely to be wholly fortuitous, and would appear to indicate that temperature is a greater factor than had been supposed in causing these birds to seek the neighborhood of man.

The question as to why these Robins were so commonly observed in Nova Scotia last winter is one which at present does not seem to be capable of definite answer, for too many of the possible contributory causes are unknown. Some efforts toward a solution of the problem are, however, here submitted.

In the first place, it would appear fair to presume that these Robins were not, as was popularly supposed, misguided arrivals from the south at an unusually early date. It seems probable that they had remained in Nova Scotia, or in regions still further north, from the time of the fall migration until the time when they were seen here. The fact that few were seen between December 1 and the middle of January is explainable by the supposition that during that time they were living in the deep woods, miles from any human being except an occasional Indian or a gang of lumbermen, and that they were then more widely scattered. In the woods at that time large quantities of juniper berries and mountain ash berries would be available for their food supply.

Whether more Robins than usual remained in Nova Scotia in this way last fall seems an open question. Mr. R. W. Tufts, of Wolfville, N. S., in a letter dated February 13, 1918, which was published in the Halifax "Morning Chronicle" of February 15, gives it as his opinion that there was no unusual number of Robins in the province last winter. He attributes the great number of Robins seen in the province at that season solely to the fact that the snowfall was heavier than usual, which, he says, covered the juniper bushes which supplied the Robins with most of their usual winter food, and so forced them to seek sustenance in the inhabited areas of the province, where they were more easily observed. In opposition to this theory it should be noted that the snowfall of last winter, though heavy, was not of a record-breaking character, while I am informed by Mr. Harry Piers, Curator of the Nova Scotia Provincial Museum, and a veteran Nova Scotian ornithologist, that the abundance of Robin observations during the winter of 1917-18 is, so far as is shown by his records or memory, absolutely without parallel. I have experienced some difficulty in obtaining records of snowfall for years other than the more recent ones, but the monthly snowfalls at Halifax for the winter of 1904-05, for instance, compare with those of the winter of 1917-18 as follows.

		<i>December</i>	<i>January</i>	<i>February</i>	<i>March</i>	<i>Total.</i>
Total snowfall } in inches }	1904-05	26.3	45.9	37.4	11.6	121.2
	1917-18	33.4	15.1	42.8	30.2	121.5

Although the totals for the two winters are practically alike, yet it will be observed that by February 1, 1918, after a snowfall of 48.5 inches in December, 1917, and January, 1918, Robins were observed as fairly common throughout Nova Scotia, whereas a snowfall of 72.2 inches in December, 1904, and January, 1905, appears to have caused no unusual observations of Robins in the province, nor is there record, so far as I can discover, of any larger number of these birds than usual being seen here at any time that winter. These facts would seem to tend to show either that in the winter of 1917-18 an unusual number of Robins did remain in this part of Canada, or that their appearance in the settled parts of the country was due to other causes than the heavy snowfall, or that both of these hypotheses are true.

It has been suggested to me by Prof. E. C. Allen, of Truro, N. S., that many of the Robins seen in Nova Scotia this winter may have spent the first part of the winter outside of this province, in the neighboring, wilder regions to the northward. In proposing this theory he says, "Granting that scattered Robins do remain [in winter] in regions north of Nova Scotia (a fact concerning which I have no evidence), would not the continued cold weather tend to drive them south, and, owing to the contour of the coast, might they not hesitate to cross the water south of us in winter, and therefore be more or less congested here? . . . It might be argued that Robins would not hesitate to cross the Atlantic strip of water south of us, as many thousands do cross in the fall. On the other hand, might it not be possible that in winter the migratory instinct might not be sufficiently strong to carry them straight out to sea over rough water?" There is need of data from New Brunswick, Prince Edward Island, and Newfoundland concerning winter Robins to throw additional light on this interesting theory.

If the number of Robins which remained here last winter was greater than usual, the cause of this condition is wholly problematical. I have not had such opportunities as I desire for observing the abundance of juniper berries and mountain ash berries in the

wilder parts of Nova Scotia last fall or this spring, but no unusual abundance or scarcity of Robin food has been revealed by such observations as I have been able to make. It may be that the migratory instinct failed last fall in a greater number of Robins than usual, and thus more of them were influenced to remain here, or it may be that subtle meteorological forces caused a change in the migration of some of these birds.

It has already been noted that low temperatures seem to have accompanied the appearance of the Robins. In what way the temperature may have caused the Robins to seek the inhabited districts I cannot say, unless it might be by temporarily congealing the surface of swampy and springy areas, which ordinarily remain open in winter weather, and from which the Robins may have obtained food when the rest of the country was covered with snow. Further investigation appears to be much needed here. While considering temperature, it is worthy of note that the past winter was exceptional for one other thing besides the unusual numbers of Robins seen — that is, for its long, unbroken periods of low temperature. A direct relation between these two phenomena may be suggested. In other parts of northern North America this low temperature seems to have caused an unusual scarcity of winter birds, but that was not the case here.

After February 25, although the weather remained severe, there appear to have been no observations of Robins in the province until the arrival of the first spring migrants, noted at Halifax on March 26. This may be due to the birds' having finally left us for a more congenial climate, but I am strongly inclined to believe that it was caused by the destruction of practically all the Robins in the province, their last available supplies of food having been exhausted. This would account for the disagreement between the Robin graph and the temperature graph after February 20. Although only two dead Robins, other than those killed by an owl, were reported, yet scarcely more than this would be expected, since most of the birds would probably die in out-of-the-way places, and would soon be covered by snow or devoured by animals.

It is hoped that the facts and suggestions here presented may throw some light on the subject of winter Robins and perhaps help to point out some new lines of inquiry, so that before long

additional observations and investigations may make the full truth of the matter clear. The observations of the winter of 1917-18 were unusual, but it is often by a study of the unusual that the usual is understood.

REMARKS ON BEEBE'S 'TROPICAL WILD LIFE.'

BY THOMAS E. PENARD.

IN a previous number of 'The Auk' (1918, XXXV, p. 91), Dr. Witmer Stone reviewed briefly this interesting volume published by the New York Zoölogical Society, presenting the first season's work at the tropical research station, established in British Guiana under the direction of Mr. William Beebe. The results obtained by Mr. Beebe and his associates are of such interest and importance, and the work in general so deserving of the reviewer's praise, that I feel rather reluctant in offering a few slight corrections. My observations are not intended as criticisms, and I would hardly have thought it worth while to express them, were it not for the fact that the very excellence and authoritative character of Mr. Beebe's book might perhaps have the effect of creating a few misleading impressions in regard to some minor matters with which it deals.

In Chapter VIII Mr. Beebe gives a list of the birds of the Bartica District, in which, for the sake of completeness, he includes some species collected by Whitely at the same place, and listed by Salvin in 'The Ibis' for 1885 and 1886. Twenty-two species are starred to indicate that they are new to the Colony of British Guiana. Of this number, however, at least eighteen have been previously recorded from various localities in the Colony as follows:

Columba plumbea plumbea VIEILLOT.—Listed by Salvin (Ibis, 1886, p. 173) from Bartica Grove and Camacusa. Percival (Birds of the Botanic Gardens, 1893, Argosy reprint, p. 6) says that it is "unfrequent in Gardens, though a common species." Dawson (Hand-list of the Birds of British Guiana, 1916, p. 51) lists it as a Colonial species. Some of these

records may, however, apply to *Cenanas purpureotincta* (Ridgway). The form inhabiting British Guiana is *Cenanas plumbea locutrix* (Max.).

Ibycter americanus (BODDAERT). Bonson (P. Z. S., 1851, p. 56) records it from Br. Guiana under the name of "Red-headed Carracara." It is listed by Salvin (*l. c.*, 1886, p. 77) from Bartica Grove and Camacusa; by Quelch (Timehri, 1890, p. 102 and p. 334) from Demerara Falls and Upper Berbice; by Chubb (The Birds of British Guiana, 1916, i. p. 216, McConnell coll.) from Kamakabra River, etc., giving range in Br. Guiana; and by Dawson (*l. c.*, p. 7).

Urochroma batavica (BODDAERT).—Lloyd (Timehri, 1895, p. 272, sub nom. *Urochroma cingulata*) mentions it as formerly very plentiful in the neighborhood of "Groete Creek," and (*l. c.*, p. 278) gives local range as Essequibo River and N. W. District; F. P. and A. P. Penard (De Vogels van Guyana, 1908, i. p. 523) say these birds are not unfrequently seen in Surinam and Demerara during the Dry Season; Chubb (*l. c.*, p. 336, sub nom. *Touit batavica*) records specimens from Supenaam River and other localities, and gives range in Br. Guiana; and Dawson (*l. c.*, p. 20) lists it as the "Black-winged Parakeet."

Ceryle americana americana (GMELIN).—Recorded by Salvin (*l. c.*, 1886, p. 60) from Bartica Grove and other localities; by Sharpe (Cat. Birds Br. Mus., 1892, xvii, p. 139) from Demerara River; by Chubb (*l. c.*, p. 348) from Bonasika River, etc., giving range in Br. Guiana; and by Dawson (*l. c.*, p. 16).

Cypseloides fumigatus STREUBEL.—F. P. and A. P. Penard (*l. c.*, 1910, ii, p. 95) state that there are specimens in the Georgetown Museum, and Dawson (*l. c.*, p. 34) lists it as a Colonial species.

Tapera nævia (LINNÉ).—Schomburgk (Reis. 1848, iii. p. 713, sub nom. *Diplopterus galeritus*) says that it is abundant in coast regions. Quelch (Timehri, 1891, p. 95; Reprint, p. 27) speaks of it as common in Georgetown; and Percival (*l. c.*, p. 9) states that its frequent plaintive note "Wife-sick" is one of the most familiar garden sounds. It has also been recorded by Salvin (*l. c.*, 1886, p. 64) from Bartica Grove and Roraima; by Shelley (Cat. Birds Br. Mus., 1891, xix, p. 423) from Georgetown; by Chubb (*l. c.*, p. 443) from Ituribisi River, etc., giving range in Br. Guiana; and by Dawson (*l. c.*, p. 23). The Br. Guiana form stands, *Tapera nævia nævia* (Linné).

Pteroglossus aracari aracari (LINNÉ).—Schomburgk (*l. c.*, p. 720) states that the species is tolerably abundant in Br. Guiana. It has been recorded by Salvin (*l. c.*, 1886, p. 65) from Bartica Grove; by Selater (Cat. Birds Br. Mus. 1891, xix, p. 138) from Demerara; by Chubb (*l. c.*, p. 458, sub nom. *Pteroglossus roraimæ*) from Roraima etc., giving range in Br. Guiana; and by Dawson (*l. c.*, p. 22). The form inhabiting Br. Guiana is *P. a. atricollis* (P. L. S. Müller)—see Bangs and Penard (Bull M. C. Z., 1918, p. 55).

Chloronerpes rubiginosus (SWAINSON).—Schomburgk (*l. c.*, p. 715) says he found it throughout Br. Guiana. It has been recorded by

Salvin (*l. c.*, 1886, p. 59) from Bartica Grove, Merumé Mountains, and Roraima; by Chubb (*l. c.*, p. 483) from Anarika River, etc., giving range in Br. Guiana; and by Dawson (*l. c.*, p. 24).

Thamnophilus amazonicus SCLATER.—Schomburgk (*l. c.*, p. 687) states that it inhabits the low bushes of the coast woods. It has been recorded by Salvin (*l. c.*, 1885, p. 423) from Bartica Grove and Camacusa; by Sclater (Cat. Birds Br. Mus., 1890, xv, p. 199) from Takutu River (Salvin-Godman coll.); by Quelch (Animal Life in Br. Guiana, 1901, p. 182); and by Dawson (*l. c.*, p. 26), who stars the species, indicating that there are no representatives in the Museum at Georgetown. All these authors, except Sclater, refer to this species as *Thamnophilus ruficollis* [= *amazonicus* ♀ ?].

Dysithamnus schistaceus (D'ORBIGNY). F. P. and A. P. Penard (*l. c.*, 1910, ii, p. 308) state that there are specimens in the Museum at Georgetown. Dawson (*l. c.*, p. 26) lists it as a Colonial species.

Automolus infuscatus SCLATER.—Recorded by Salvin (*l. c.*, 1885, p. 420, sub nom. *Automolus sclateri*), from Bartica Grove, stating that the specimens are rather smaller than those from the type locality, with faint indication of striation on the throat; and by Sclater (Cat. Birds Br. Mus. 1890, xv, p. 95, sub nom. *Automolus sclateri*) from Camacusa and Bartica Grove. *Automolus sclateri* (Pelzeln) is a pure synonym of *Automolus infuscatus* Sclater, having been proposed by Pelzeln (Orn. Bras., 1867, i, p. 41) on the assumption that the name *Automolus infuscatus* was preoccupied by *Anabates infuscatus* Bonaparte, which, however, proves to be a *nomen nudum* (Cf. Hellmayr, Nov. Zool., 1905, xii, p. 279). Mr. Beebe lists both *infuscatus* and *cervicalis*, apparently considering them two distinct species, the former only being starred as new to the Colony. Hellmayr (Nov. Zool., 1906, xiii, p. 335) says that "the specimens of *Automolus sclateri* from British Guiana in the British Museum are absolutely identical with the type of *P. cervicalis*," and states that the type of *P. cervicalis* is an immature bird. He lists the Guiana form, which differs from true *infuscatus*, as *Automolus infuscatus cervicalis* (Sclater), type locality "Camacusa and Bartica Grove."

Apparently, then, records of *A. infuscatus*, *A. sclateri*, and *A. cervicalis*, in Br. Guiana, apply to the same bird.

Sclerurus rufigularis PELZELN.—Hellmayr (Nov. Zool., 1906, xiii, p. 364) mentions an immature bird from Takutu River, Br. Guiana, and says (*l. c.*, p. 365) that there is a specimen in the British Museum collected by Whitely at Bartica Grove. He also says that the Br. Guiana Museum has a ♂ from Ourumee.

Xiphorhynchus guttatoides (LAFRESNAYE).—The form *guttatoides* of Colombia, is a subspecies of *Xiphorhynchus guttatus* Lichtenstein, of which the race inhabiting Br. Guiana is *X. g. sororius* (Berlepsch and Hartert), type locality Perico, Orinoco River. Berlepsch and Hartert (Nov. Zool., 1902, ix, p. 63), who originally described this form as *Dendroornis rostripallens sororia*, mention a specimen from Quonja, Br. Guiana,

coll. Whitely, agreeing with birds from Perico. Schomburgk (*l. c.*, p. 690, sub nom. *Dendrocolaptes guttatus*) says he found it throughout Br. Guiana; Salvin (*l. c.*, 1885, p. 422), referring to it as *Dendroornis guttatoides*, records a specimen from Bartica Grove; and Dawson (*l. c.*, p. 29) lists it under the same name. Quelch (*Animal Life in Br. Guiana*, 1901, p. 177), speaking of *Dendroornis pardalotus* and *Dendroornis guttatoides*, says that one or both of these species will invariably be found in collections made in the forest districts.

Elænia guianensis BERLEPSCH.—The type locality of this species is Camacusa, British Guiana. It has been recorded by Salvin (*l. c.*, 1885, p. 295) as *Elainea elegans*, from Bartica Grove, Camacusa, etc.; by Sclater (*Cat. Birds Br. Mus.*, 1888, xiv, p. 150) as *Elainea gaimardi*, from Roraima; and by Dawson (*l. c.*, p. 13) as *Myiopagis gaimardi*. The Br. Guiana form now stands, *Myiopagis gaimardii guianensis* (Berlepsch).

Empidochanes fuscatus cabanisi LÉOTAUD.—Recorded by Salvin (*l. c.*, 1885, p. 297, sub nom. *Empidochanes olivus*) from Bartica Grove; and by Sclater (*Cat. Birds Br. Mus.*, 1888, xiv, p. 224, sub nom. *Empidonax oliva*), who states that this is the northern form of *E. bimaculatus* (d'Orb. and Lafr.), adding that he was doubtful whether it was really entitled to the name *oliva*. The type locality of *cabanisi* is Trinidad. The form inhabiting Cayenne is *Empidochanes fuscatus fumosus* Berlepsch, to which we suppose the Surinam bird also belongs.

Riparia riparia (LINNÉ).—Recorded by Salvin (*l. c.*, 1885, p. 206) as *Cotile riparia*, from Bartica Grove.

Sporophila bouvronides (LESSON).—Brabourne and Chubb (*Birds of South America*, 1912, i, p. 367) refer *S. ocellata* (Scl. and Salv.) to this species, and give the type locality Trinidad. References to *S. ocellata* in Guiana probably apply to the same bird which Mr. Beebe had in hand. Mr. Beebe also lists *S. lineola* (Linn.). Sharpe (*Cat. Birds Br. Mus.*, 1888, xii, p. 130) lists *S. ocellata* from Carimang River, Br. Guiana. Dawson (*l. c.*, p. 48) mentions both *ocellata* and *lineola*.

Thraupis palmarum palmarum. (WIED).—Schomburgk (*l. c.*, p. 670, sub nom. *Tanagra olivascens*) states that it is abundant at the coast. It has been recorded by Salvin (*l. c.*, 1885, p. 210) from Bartica Grove and Roraima; by Quelch (Timehri, 1891, p. 81; Reprint, p. 13) who says it is common in Georgetown, mentioning the species again later (*Animal Life in Br. Guiana*, 1901, p. 113); by Price (Timehri, 1891, p. 63) who describes the eggs; by Percival (*l. c.*, p. 16) who states that it is "not very often seen in the Gardens, though common among the innumerable cocoanut palms in and about town," where the writer also has seen it; and by Dawson (*l. c.*, p. 46; and Timehri, 1911, p. 272). The type locality of *palmarum* is Bahia, and judging from material examined, I would say that birds from Cayenne, Surinam, and Br. Guiana, differ distinctly from true *palmarum*, and are more nearly allied to, if not indistinguishable from, the Eastern Peruvian race, *Thraupis palmarum melanoptera* (Sclater).

Saucerottia erythronota (LESSON).—With reference to this species

also marked with a star, we do not find in Mr. Beebe's list *Agyrtrina fimbriata fimbriata* (Gmelin), which is common in Br. Guiana, and which has been recorded from Bartica by Chubb (*l. c.*, p. 395). This bird has sometimes been confused with *Saucerottia erythronota* (*Cf.* Salvin, *Cat. Birds Br. Mus.*, 1892, xvi, p. 187) and has been listed from Bartica by Salvin (*Ibis*, 1885, p. 435) under the name *Agyrtria tobaci* of which *erythronota*, type locality Trinidad, is a subspecies.

A longer stay at Bartica, no doubt would have augmented Mr. Beebe's list considerably. For instance, Mr. Chubb, in his work on the birds of British Guiana, records twenty-seven species in the McConnell Collection, which are not included in Mr. Beebe's list.

In Chapter XIII we find an account of the author's ornithological discoveries, pertaining mostly to nests and eggs, with excellent photographic illustrations. Some of these discoveries, however, are by no means entirely new, reliable information on nests and eggs having been published in regard to at least twelve of the seventeen species discussed. Attention is called to the following records:

Chamepelia talpacoti (TEMMINCK AND KNIP).—Dalglish (*Proc. Roy. Phys. Soc. Edinburgh*, 1889, x, p. 86) describes two nests, each containing two eggs, found Nov. 20, 1886, in Paraguay. Nehrkorn (*Kat Eiersamm*, 1899, p. 184) lists eggs from Paraguay, 23×18 mm. Euler (*Rev. Mus. Paulista*, 1900, iv, p. 98) describes nests and eggs, 22.5×18 mm. Ihering (*Rev. Mus. Paulista*, 1900, iv, p. 282) describes nest and eggs, and says that he found a nest built upon the deserted nest of another bird, containing two eggs, 22×17 mm. F. P. and A. P. Penard (*l. c.*, 1908, i, p. 340) describe habits, nests, and eggs under *C. rufipennis*, assuming *talpacoti* and *rufipennis* identical in Surinam, judging from specimens which had been identified for them in England as *rufipennis*. Apparently there is some confusion here, and the bird identified as *rufipennis* was probably the newly described *Chamepelia arthuri* Bangs and Penard (*Bull. M. C. Z.* 1917, p. 45).

Geotrygon [= Oreopelia] montana (LINNÉ).—Eggs listed by Nehrkorn (*l. c.*, p. 186) from Rio Grande, Mexico, and Porto Rico, brownish, 27×21 mm. F. P. and A. P. Penard (*l. c.*, 1908, i, p. 347) say that the nest is very much like that of *Leptoptila*, placed on low branches of trees and in bushes; eggs, short-elliptical, brownish cream-color, 27×21.5 mm.; breeds in the Dry Season. Site, nest, and eggs, have also been described by Lawrence (*Proc. U. S. N. M.*, 1879, i, p. 276), by Wells (*Ibid.*, 1887, p. 625), and by Scott (*Auk*, 1892, ix, p. 124, quoting Taylor).

Porzana albicollis (VIEILLOT).—Nehrkorn (*l. c.*, p. 202) describes eggs from Surinam, meas. 35×26 mm. Ihering (*l. c.* p. 286) describes

eggs received from Iguape, meas. $35-26 \times 27-28$; he says that the eggs described by Euler (*l. c.*, p. 102) undoubtedly belong to another species. F. P. and A. P. Penard (*l. c.*, 1908, i, p. 206) describe habits, site, nest, and eggs, meas. 35×27 mm.

Creciscus viridis (P. L. S. MÜLLER).—Nehrkorn (*l. c.*, p. 203) describes eggs from "Guyana," meas. 32×23 mm. F. P. and A. P. Penard (*l. c.*, 1908, i, p. 210) describe habits, nest, and site fully; eggs two, rarely three, usually oval, pure white, almost without gloss, meas. 32×26 mm.; they say further that the eggs do not vary much, some having a few black-brown spots at the large end; in the nests are often found infertile and abnormal eggs.

Caprimulgus [= **Nyctipolus**] **nigrescens** CABANIS.—Nehrkorn (*l. c.*, p. 156) lists eggs from Amazonia, meas. 23.5×18.5 mm. F. P. and A. P. Penard (*l. c.*, 1910, ii, p. 78) describe eggs, one or two, barely glossy, elliptical, pale yellowish-rose, distinctly spotted and blotched with chocolate-brown and purple-gray, meas. 25×18.5 mm. The eggs described by Schomburgk (*l. c.*, p. 711) must have belonged to another species.

Empidonomus varius varius (VIEILLOT).—Mr. Beebe (*l. c.*, p. 225) states that "although the eggs of this species have been collected no description of the nest has been given. "We would call attention to description of a nest by Ihering (Rev. Mus. Paulista, 1914, ix, p. 443 and p. 482); the nest was collected by Garbe near Joazeiro, Bahia, in November, 1913.

Pipra aureola aureola (LINNÉ).—F. P. and A. P. Penard (*l. c.*, 1910, ii, p. 188) describe site and nest fully, giving measurements; the eggs are described as two, dull brownish gray, with numerous dark-brown spots, streaks, and dots, over the entire surface, but usually, on one of the eggs of a clutch, forming a wreath at the middle; meas. 21×15.5 mm.

Cyanerpes cyaneus cyaneus (LINNÉ).—F. P. and A. P. Penard (*l. c.*, 1910, ii, p. 475) say that the nests and eggs, 20×14 mm., do not differ much from those of *C. caerulea*, under which name they give full descriptions of nests and eggs. The eggs are described as two in number, oval, almost without gloss, black or purplish black-brown. The nest is described as made of little black roots, pear-shaped or shoe-shaped, with entrance low down at the side, measuring 16 cm. high and 9 cm. across, suspended like the nest of *Todirostrum* from twigs two to five feet from ground. J. A. Allen (Bull. Am. Mus. Nat. Hist., 1891, iii, p. 348) under the name *Arbelorhina cyanea* describes an egg collected by H. H. Smith, "taken with parents, Oct. 13, 1882," in Matto Grosso, Brazil, but judging from the description, it must have belonged to some other species.

Under the general heading of "Seed eaters" Mr. Beebe (*l. c.*, p. 237), speaking of *Oryzoborus angolensis brevirostris*, *Oryzoborus crassirostris*, and *Sporophila castaneiventris*, says, "Familiarity breeds contempt. There could be no truer saying than where these little finches were concerned. In spite of diligent search through all the few reports and excerpts on the

subject, no description of the home or eggs of these birds could be found, and yet, in April and May, their nests were everywhere." H. Lloyd Price, in his paper on "The Nests and Eggs of some common Guiana Birds" (Timehri, 1891, p. 64), says in a general way, "Various species of small finches or grass birds (*Spermophila*, etc.), build tiny nests in the long grass growing at the sides of the trenches; they are generally made of dry grass, and occasionally of dry sticks. The eggs, two in number, are of a greyish white spotted with either red, brown or grey, and of various sizes." Much more definite information in regard to the breeding habits, nests, and eggs of the seed-eaters will be found in the works of F. P. and A. P. Penard, Ihering, Euler, and Nehr Korn. We would call attention to the following accounts pertaining to the species mentioned by Mr. Beebe:

Oryzoborus angolensis brevirostris BERLEPSCH.—Nehr Korn (*l. c.*, p. 105) describes eggs from Brazil. Ihering (Rev. Mus. Paulista, 1900, iv, p. 213) describes nest and eggs. F. P. and A. P. Penard (*l. c.* 1910, ii, p. 388) says that the nest is smaller than that of *O. crassirostris*; the eggs are fully described. All these authors deal with this species under the name *O. torridus*.

Sporophila castaneiventris CABANIS.—Nehr Korn (*l. c.*, p. 105) describes eggs from Amazonia. F. P. and A. P. Penard (*l. c.*, 1910, ii, p. 389) describe habits, nest, and eggs fully. They add the following interesting remarks (translated): "The examples vary very much in form and color as well as in measurements. In many the markings form a distinct wreath about the larger end, others being uniformly covered with gray-brown or brown. Those with wreathed ends are usually of a more oval shape than the evenly covered eggs, but both types are often found together in the same nest. It is thought [by the natives] that the more pointed egg hatches the male, and the browner egg the female. Eggs of a more spherical shape are less common with this species than with the next [*S. minuta*]."

Oryzoborus crassirostris crassirostris (GMELIN).—F. P. and A. P. Penard (*l. c.* 1910, ii, p. 387) describe habits, nest, and eggs fully, with similar remarks in regard to variations in shape and coloration of eggs, both types sometimes being found in the same nest.

Sporophila bouvronides (LESSON). F. P. and A. P. Penard (*l. c.*, 1910, ii, p. 392, sub nom. *S. ocellata*) compare nest to that of *S. minuta*, and eggs with those of *S. castaneiventris*, but say that the eggs of this species average a little longer and also a little grayer, with remarks in regard to the two types of eggs.

In another chapter the author gives much interesting information regarding the habits of Tinamous. By an ingenious experiment he is led to the discovery that birds of the genus *Tinamus* sleep at night in trees, while those of the genus *Crypturus* always pass the night upon the ground. He accordingly correlates this difference

in habits to the character of the back of the tarsus, which in *Tinamus* is rough, and in *Crypturus* quite smooth. He goes on to say (*l. c.*, p. 255):

"These two distinctions have been recognized for many years — *Tinamus* for more than one hundred and thirty, and *Crypturus* for a hundred and six years, and during all this time ornithologists have accepted this character without thought or question."

I may say that the roosting habits of Tinamous are well known to hunters in Surinam, and according to Mr. Beebe himself they were not unknown to his Akawai hunter, Nupee, in whose statements, however, Mr. Beebe seemed disposed to place less confidence than in his own experiment, notwithstanding the fact that in either case conclusive evidence could only be sought in actual observation in the field.

Nearly one hundred years ago Charles Waterton (*Wanderings in South America*, 1825, p. 286) called attention to these habits and suggested that the state of the tarsus might have some bearing upon them. These are his words:

"There is something remarkable in the great Tinamou, which I suspect has hitherto escaped notice. It invariably roosts in trees; but the feet are so very small in proportion to the body of this bulky bird, that they can be of no use to it in grasping the branch; and, moreover, the hind toe is so short, that it does not touch the ground when the bird is walking. The back part of the leg, just below the knee, is quite flat, and somewhat concave. On it are strong pointed scales, which are very rough, and catch your finger as you move it along from the knee to the toe. Now, by means of these scales, and the particular flatness of that part of the leg, the bird is enabled to sleep in safety upon the branch of a tree."

In regard to the "small Tinamou," Waterton (*Ibid.*, p. 287) says, "The foot of this bird is very small in proportion, but the back part of the leg bears no resemblance to that of the larger Tinamou; hence one might conclude that it sleeps on the ground."

Here then, we have at least one naturalist to whom "the casual, nominal affair between Hermann and Illiger versus *Tinamus* and *Crypturus*" was not all.

But Waterton was not the only writer who has mentioned these things. Schomburgk, (*l. c.*, p. 749) under the name *Trachypelmus subcristatus* [= *Tinamus major* (Gmel.)], speaks of the relation of

the rough tarsus to the bird's habit of roosting in trees, but under *Crypturus variegatus* (Wagler) (*Ibid.*, p. 748) says that he does not know whether that species also passes the night in trees. More recently F. P. and A. P. Penard, under the names *Tinamus sub-cristatus* (l. c. 1908, i, p. 318) and *Crypturus variegatus* (*Ibid.*, p. 322) definitely state the bearing of the construction of the tarsi in these two genera upon the dissimilarity in roosting habits.

Mr. Beebe's discoveries in regard to the homes of Toucans, also, are extremely interesting, although the state of affairs regarding our knowledge of the life history of Toucans was really not so scanty as conveyed by the few words of Levaillant which the author quotes. It may be of interest to call attention here to a Toucan egg said to be of *Ramphastos ariel* Vigors, collected by Krone at Iguape, and recorded by Ihering (Rev. Mus. Paulista, 1900, iv, p. 262). It is described as oval, measuring 37×28 mm., white, with deep pits on the surface. Schomburgk, Burmeister, and others from time to time, have mentioned Toucan eggs, but beyond saying that the eggs were white, two in number, laid in holes in trees, they did not give much information.

In concluding I wish to emphasize that I appreciate fully Mr. Beebe's good work at the research station in British Guiana, and my remarks should not be construed as having been made with the purpose of depreciating the excellent publication, of which I have discussed, after all, only some very unimportant details.

PROBLEMS SUGGESTED BY NESTS OF WARBLERS OF THE GENUS *DENDROICA*.

BY JOHN TREADWELL NICHOLS.

THE genus *Dendroica* with center of abundance in eastern North America, containing numerous closely related birds, inhabiting in a general way the same region and boldly contrasted the one from the other in plumage, constitutes a striking natural phenomenon calling for explanation.¹

¹ Nichols, J. T., *American Naturalist*. September, 1916; pp. 565-574.

First what advantage to the race can there be in the evolution of so many species of similar habits? Probably though in the main not unlike, a careful comparative study of the species will show that sufficient difference of habit accompanies each to make it fit a slightly different niche in the environment. I mention a single phase, the construction of the nest. For my data on warbler nests I am indebted to Mr. P. B. Philipp of New York, who possesses a very complete personally collected series of these. In his collection we have together verified interesting points that he has learned, and also worked out other matters.

The nests of different species of *Dendroica*, even when found in the same country, are remarkably distinct and can usually be recognized at a glance. In Northumberland County, New Brunswick, a locality with which Mr. Philipp is particularly familiar, Cape May, Yellow, Black-throated Blue, Myrtle, Magnolia, Bay-breasted, Blackpoll, Blackburnian, Black-throated Green, and Yellow Palm Warblers all breed, and he has found the nests of all but the Blackburnian placed in spruces at different heights. The nest of the Blackburnian has not been found here, but doubtless is placed high up in the spruces, as he has found it in such situations in Pennsylvania. The Yellow Palm Warbler usually nests on the ground in moss or dead ferns, but one nest was placed a few inches from the ground in a small spruce. Though a single nest of the Yellow Warbler was found in a spruce, that species may nest more commonly in the willows. Cape May, Myrtle, and Blackburnian Warblers nest high, the other species low.

The nest of the Black-throated Blue has a characteristically pale exterior, weed stems, pale bark, and rotten wood-chips being favorite materials for the bird to use in its construction. It is lined with black, hair-like, slightly crinkly substance, much used for that purpose by Warblers, the stem of a woodland ground-moss (the Cape May has been seen gathering this material). Occasionally horse-hair is substituted for it. In the Black-throated Green, spruce twigs and birch-bark whorls are characteristic of the exterior; hair and an occasional feather, of the interior. The Myrtle and Blackpoll both line the nest heavily with feathers; but the exterior is very different in the two,—in the Myrtle compact, of spruce twigs and fine dry grass, in the Blackpoll loose and bulky, rotten

wood-chips, mosses, and a few twigs being used. The Magnolia lines its nest with horse-hair if it can get it, this material being present in Pennsylvania nests taken where it was obtainable, but will use other hair or "moss-stems." One half or more of Mr. Phillip's nests are lined with horse-hair. The Magnolia's nest is composed outside entirely or almost entirely of spruce twigs or grass and is a ragged looking nest. The Baybreast builds a ragged nest that looks like that of the Magnolia but is much larger; for lining it uses fine roots or "moss-stems." The Cape May's nest is thick-walled, rather flat, with fine sticks, a little grass and characteristic dried green moss on the outside, feathers and usually light colored hairs neatly molded down inside. A few "moss-stems" are used in construction, and outside, here and there are specks of very adhesive down. Mr. Philipp has seen a Cape May gathering fur from a dead rabbit, and also apparently picking hair out of a brush-pile.

As regards other species, the Blackburnian builds a nest resembling the Magnolia's but more compact and placed higher. The nest of the Yellow Warbler is smooth, very pale, of plant-down without, and fern-down within. The Yellow Palm Warbler's nest, usually placed on the ground in moss at the foot of a small spruce, is bulky, fairly thick-walled, of grass lined with fine root-lets often combined with some porcupine and at times other hair, and with usually only a few feathers.

There is some variation in the typical location of the nests by species, and in general the nest is very inconspicuous in its location. The dried moss on the Cape May's nest may be especially adapted to conceal it (from below) in the spruce tops from its enemy, the Red-Squirrel. The Baybreasts' ragged nest, well out on a low limb, is almost transparent. The pale Black-throated Blue nest in New Brunswick spruces is placed close to the trunk where it is well concealed; nesting in the rhododendrons in Pennsylvania, the Black-throated Blue nest is well concealed by the glint of light on the rhododendron leaves.

The nest of a bird is one of the most notable products of its instinct. Obviously much precision is necessary in selecting the appropriate materials and fitting them together, for the attainment of a successful product. That to obtain the right materials

is a problem to the individual bird is evidenced by the adoption of horse-hair by the Magnolia Warbler to supplant the very similar "moss-stems" which doubtless were its original material. The Chipping Sparrow must have substituted horse-hair for some precivilization material, and its habits are such that horse-hair is almost always obtainable by it and now almost the invariable nest-lining for the species. It is clear that to be successful the nest-building instinct of a given species must be pretty well fixed, that a bird must know what material it will use, also were all the *Dendroicas* dependent on,—let us say, feathers, horse-hair, or rabbit fur, there would be less of it for each, and specific differentiation is thus an advantage to the Dendroicine population as a whole.

Secondly, what advantage to the species is there in their contrasted plumages—in the writer's opinion the colors of each act as a uniform, facilitating the recognition by a bird of its own kind just as they facilitate its recognition by a bird student.¹

A varicolored group of animals such as *Dendroica*, where many related species occupy the same locality,—other such groups come to the writer's mind, notably among tropical reef fishes,—should be considered in formulating or accepting theories on species formation. In many cases isolation and reinvasion are doubtless the succeeding steps in speciation, a process clearly indicated by work recently done by Taylor on the mammals of California.² There is no inherent impossibility of the many *Dendroicas* of eastern North America having been similarly evolved, but with them it would seem to have been a difficult and complicated process instead of a simple and easy one, as with sedentary mammals in a broken country, and may not the forms have arisen for biological advantage without these steps?

¹ Nichols, J. T., Auk. Jan. 1912: pp. 44-48.

² Taylor, Walter P. Univ. of Cal. pub. Zoology, Vol. 12, no. 15, March, 1916.

ON THE POPULAR NAMES OF BIRDS.

BY ERNEST THOMPSON SETON.

EVERYONE who has studied the subject knows the enormous projectile power of the exact right name when one wishes to secure popular acceptance of any idea. The amount of effort and ability, devoted by men in commerce to securing the right name is evidence of the experienced view in dealing with the problem. Thousands of dollars in prizes are offered for a good name to be given to some new article, picture, idea, hotel or town. Because these experts know that the happy name makes all the difference between failure and nation-wide acceptance.

We have precisely the same problem offered us in dealing with our birds. The scientific names must, of course, be left to the scientific experts, who, we must admit, take them very seriously; but the popular names have been treated in a most casual or contemptuous way, in many cases ignored altogether.

The attitude of the scientists recalls that of the pedantic classical scholars of the early Queen Anne period. They had imbibed such a contempt for the English language of the day that they set about seriously to rewrite the King James Bible "in dignified English." The first phrase of the Prodigal Son, for example, in the authorized version is as follows: "A certain man had two sons and the younger of them said to his father," etc. Such simple language, they said, "savoured of the nursery and stank of the gutter," so they rewrote it, in their "dignified English" as follows:—"In remote antiquity, antedating the meticulous epoch of precise chronology, there was an opulent and distinguished gentleman who resided in the agricultural district of the Orient, and was the progenitor of two adult descendants of the masculine gender. Having attained to majority and, presumably, the years of discretion, the junior scion addressed his immediate ancestral paternal relative and thus expressed the result of a prolonged, solitary and introspective cogitation."

This attitude of the Johnsonian school exactly parallels that of our book ornithologists toward bird names evolved by the common

people. And when I remind you that the so-called classical product is remorselessly scrapped now, and, further, that Skeat, the greatest modern authority on English, has warned us that, rules or no rules, grammar or no grammar, classics or no classics, the street language of London today will inevitably become the university language of England tomorrow; and the street language of modern New York, the university language of America, just as surely as the street language of Elizabeth's time devoured alike the Norman French, and the Anglo-Saxon as well as the bastard classic of the pedants, and became at last the language of Oxford and Cambridge.

Now to apply this to our bird names.

If it is the aim of ornithology to spread a nation-wide knowledge of birds, then the popular names are at least as important as the Latin names.

In 1885, I wrote to 'The Auk' on the same subject, (Vol. 2, p. 316) and have no reason to change the views therein expressed.

The scientist, as such, has no more to do with the popular names of the birds than he has with the conjugation of the verb "to be," for these are a growing part of the living language. And yet, the scientists have arrogated the sole right to dictate the popular names, even while they frankly and openly despise them; sometimes ignoring them altogether; sometimes condescendingly translating the scientific name into alleged English, saying that it was good enough. How far all this is wrong and harmful to bird study, I hope you will allow me to point out.

The popular name of a bird must always be produced by the genius of the language, speaking usually through some personal genius who makes a happy hit. The name must be simple, easily said, descriptive, short, and is much stronger if in some way it ties up the bird's characteristics with familiar ideas.

For example, "Kingbird" is a success; is short, is of familiar elements, and describes the bird's character. Every farm boy in its region knows the Kingbird, and by that name, except in a few localities where the rival name 'Bee-martin' still fogs the issue.

If we pretend that the name of that species is "Tyrant Fly-catcher," as our scientists once insisted, our popular knowledge of the bird would disappear and with that all popular interest in it.

Another example, "Bronzed Grackle." For a hundred years, the scientists have been trying to force the people into believing that Bronzed Grackle was the English name of the bird, and have met with the unanswerable response of dumb silence; readers of the scientific bird books use the name, but the public do not. Everywhere to the farm boys the "Bronzed Grackle" is simply a "Big Blackbird." This is descriptive but far from satisfactory. Scores of times I have handed out this name "Bronzed Grackle" to inquiring boys, to find that it never reached their consciousness as a name; it had no appeal to ear or memory; it was hard to say; it was not backed by the genius of the language. I doubt if the word "Bronzed" ever could be; its really acceptable English representative is "Copper"; but the bird does n't look coppery to ordinary view; and the word "Grackle" is impossible, hard to say, meaningless, not striking any familiar chord in the memory.

"Blackbird" is the popular name. But a local genius in the northwest, a boy with instincts and eyes to see, described it and named it as a "Fantail Blackbird." Here was a real English name, descriptive, acceptable; and instantly it was a success. Everyone who heard it once remembered the name and remembered the bird.

Perhaps the best illustration of all is the name of the common American Robin. The scientists scolded the colonists fiercely for calling it a "Robin." It was not a "Robin," they maintained, it was a Thrush of the *Merula* section of the family; and they refused to use, print or sanction any English name for the bird except "Migratory Thrush." After a century of irascible attack, which was received in silent, ponderous apathy, the scientists were beaten. The cause of English triumphed and today actually even the scientific lists give the bird as the "American Robin," by which name it is known to every child in America, and loved because it is known.

For a hundred years, scientists had been trying to make us believe that Rice Troupial, Yellow-bellied Woodpecker, Carolina Nightjar, Virginia Goatsucker, Black-throated Bunting, Vociferous Plover, Golden-winged Woodpecker, Virginia Quail, Polyglot Thrush, Ferrugineous Thrush and Black-capped Titmouse, were the English names of certain American birds; but the genius of

the language was unconquerable, and at last it is admitted by the defeated scientists that the *trivial* names (as they called them) of these birds are really Bobolink, Sapsucker, Whippoorwill, Nighthawk, Dickcissel, Killdeer, Flicker, Bobwhite, Mockingbird, Thrasher and Chickadee; and with that admission public interest in these particular birds takes on a great and enduring growth.

A similar struggle is now going on between the Black-billed Cuckoo vs. Rain Crow, Snowflake vs. Snow Bird, Passenger Pigeon vs. Wild Pigeon, Goldfinch vs. Wild Canary, Junco vs. Slaty Snowbird or Tip, Cardinal vs. Redbird, Sand Martin vs. Bank Swallow, Spotted Sandpiper vs. Tip-up or Peetweet, Barred Owl vs. Hoot Owl, Virginia Horned Owl vs. Cat Owl, Acadian Owl vs. Saw-whet, Carolina Rail vs. Sora, Phalarope vs. Sea Goose, Vulture vs. Turkey-Buzzard, Pectoral Sandpiper vs. Jack Snipe, Gallinule vs. Mud Hen, Osprey vs. Fish Hawk, Peregrine Falcon vs. Duck Hawk, American Kestrel vs. Sparrowhawk.

A few names such as Bluebird, Crossbill, Chat, Wagtail, Sandpiper, etc., have long been such a success that one knows instinctively that they did not originate with the scientists.

Such clumsy names as White-throated Sparrow, Black-and-White Warbler, Red-shouldered Hawk, are, of course, not names at all, but cumbrous descriptions and doomed to failure, while absurd pedantries like Pileolated Warbler, Protonotary Warbler, Plumbeous Gnatcatcher, are worthy of the afore-mentioned pedants of the Jacobean classical epoch.

Names like Blackburnian Warbler, Nashville Warbler, Clay-colored Sparrow, Townsend's Solitaire, are utterly impossible. They are clumsy, meaningless, un-English and detrimental. I was showing the first of these birds to a group of lively children and said it was called Blackburnian Warbler. A bright boy, speaking wiser than he knew, said, "If it was 'Flaming Warbler' I'd remember it." "Nashville Warbler" is, of course, utterly misleading. We are told that the "Nashville" is a mere fortuitous word added for distinction. Then I say drop it as soon as possible, since it is no more a Nashville Warbler than it is a Virginia or Minnesota Warbler; while the word "Warbler" itself is open to grave suspicion. I wonder the clumsiness of "Clay-colored Sparrow" has not put it out long ago. I suppose the reason is it never was in.

Take the name "Western Grebe." Of course, it is n't a Western Grebe any more than several others; and, viewed from some stand-points, it is an Eastern Grebe, a Southern Grebe, a Northern Grebe, a Northeastern Grebe, a South-southwestern Grebe, or any other compass point you like to give it. But what popular ear, tongue, or imagination is ready to seize on such a name?

It has no point, power or appeal. How much better, for the present, the descriptive "Swan-Grebe," that does, in a small measure, do justice to the superb creature in question.

I suppose, if we are to be candid, the word "Grebe" has never taken root in America. I do not know why. It is, indeed, of French origin; but it has been thoroughly Englished in form. It is short, angular and individual. But the fact is that in the popular mind all "Grebes" are "Hell-divers," and we may as well admit it; although I do not see the word at all in the scientific list of popular names.

I can imagine some hearer objecting here that his ten-year-old boy or girl has all the names at his tongue's end — far better than grown-ups. Yes; I know you can teach a child to talk Latin if you do it at the language learning age and make it interesting; but you cannot thereby make it the language of the nation.

To sum up — I take it that the business of ornithology is, first, to accumulate correct information about birds and then to diffuse it among the people.

If the ornithologists had set out definitely to build an eternal barrier to popular interest in birds, they could not have done it better than by establishing such impossible names as are cited above. They never were, and never could be, English names.

The puzzle has been set forth; now what is the answer? I admit that scientists, describing a new bird, may suggest a name in pseudo-English. That seems necessary. But let them receive fair warning, that it is a temporary makeshift; tolerated, but barely respectable.

How are we to discover the acceptable name? Only by looking out for it, as a precious thing to be found, tested when found and accepted when proven. I shall never forget the little thrill that I got when I learned that, in some good and old writings, a Wood-

pecker was called a "Wood-wale." How gloriously that name would fit the so-called Pileated Woodpecker (whatever 'pileated' means; I don't know). How rhythmic — how simple! How beautifully descriptive. Does n't it make you hear that long, eerie wail in the woods?

Doctor Elliott Coues, with his usual far-sight, insight and literary appreciation, sensed this question, I think; and, in the last edition of the *Key*, made a move toward the solution by offering every name he could find or invent for each of our birds. Take Woodthrush for instance; he calls it Woodthrush, Wood Robin, Bell bird and Geraldine. Why "Geraldine"? I do not know, unless it is an imitation of its note, which is, of course, good. But all of these names seem to me of good origin and sound structure. At a guess, I would venture to say that, given equal publicity, Bell bird" would win over all the others, even granting the already considerable success of the word 'Woodthrush'; because it is so descriptive, so alliterative, so easy to say, so easy to remember and so rhythmic; in other words, it is good English.

At once, I hear the objection that that name belongs by priority to a wholly different bird in South America; and I reply that the genius of language does not know of the existence of South America or concern itself with priority, or with anything but getting the idea into the mind and the memory. As to priority, if that spectre be allowed to walk, it will surely eliminate every popular name on every list that ever was given to the public.

I would encourage all who meet them, to collect and send in the names that appear locally under pressure of the growing popular interest.

I would ask bird men of literary instinct to gather, make up, or invent good names to be submitted to the great test.

Last, for suggestions, I would ransack the pages of those outdoor poets and writers who have the two-fold gift — love of the birds and language-sense.

Thus I would gather the continual product of the popular attempts, until some day, for each bird, is discovered a happy solution that can stand the great and final tests:— Does it describe the bird? Is it short and pat? Is it a monosyllable? Or, if more than one syllable, is the accent on the first? Is it different from

other names? Is it easily said? Does it tie up the bird with existing ideas? Can it be used in writing verse? Does it win the popular attention and put both the bird and name in the memories of the children and of the farmers? If it does all these, it will have back of it all the power of the genius of English to fix it, make it nation-wide and carry with it clear knowledge of the bird.

This, it seems to me, is one of the greatest needs for the spread of bird knowledge in America today.

THE REALITY OF BIRD SPECIES.

BY LEVERETT MILLS LOOMIS.

IN 1858, in volume IX of the 'Reports of Explorations and Surveys ... from the Mississippi River to the Pacific Ocean,' *Ammodromus samuelis* Baird and *Melospiza fallax* Baird appear as full-fledged species. In 1874, in 'A History of North American Birds,' Land Birds, volume II, these so-called species are reduced in rank, being designated respectively *Melospiza melodia*, var. *samuelis*, Baird and *Melospiza melodia*, var. *fallax*, Baird. In 1886, in the first edition of the A. O. U. 'Check-List,' these names are altered, in accordance with earlier lists by Mr. Ridgway and Dr. Coues, to *Melospiza fasciata samuelis* (Baird) and *Melospiza fasciata fallax* (Baird), pure trinomials and the term subspecies having come into vogue. In 1910, in the third edition of the A. O. U. 'Check-List,' the two names are amended to *Melospiza melodia samuelis* (Baird) and *Melospiza melodia fallax* (Baird).

Owing to his lack of knowledge of geographic variation, Professor Baird gave to each of these geographic variations of the Song Sparrow an entity which they did not possess, and this entity, having gained a foothold in the literature, is perpetuated to-day in the subspecies ('incipient species'). As no one can foresee the future of these variations of the Song Sparrow, it is not known whether they are the beginnings of species or not. Nevertheless, it may be urged that bird history repeats itself, and that the

record of past events warrants the conclusion that bird species are now in process of evolution through geographic variation. Theorize as we may, the fact remains that we do not know what part geographic variation or other agencies played, or did not play, in the origin of existing bird species, the *modus operandi* of the evolution being unknown. But we do know that geographic variation is one of the common variations occurring within the bounds of a bird species of to-day, and that it is not the only variation in which geography is a factor.

Independent of individualism, age, sex, season, or climatic conditions, there exists a type of variation known as dichromatism, which perhaps originated in mutations. It is well exemplified in the Jaegers, Albatrosses and Petrels, Herons, Hawks, and Owls. In some species there is a difference in the geographic range of the phases, but it does not correlate with environment as in geographic variation. Instances to the point are found in the Wedge-tailed Shearwater, Red-tailed Hawk, and Screech Owl.

More than thirty years ago, when our knowledge of variation was far less than it is now, Dr. Stejneger had the discernment to interpret *Colaptes auratus* (Linnaeus), *Colaptes cafer* (Gmelin), and *Colaptes hybridus* Baird to be dichromatic or trichromatic phases of one species, and not two species that hybridize on a gigantic scale.¹ None of the characteristics of dichromatism are wanting in these extremes and intermediates. They are similar in general character to the extremes and intermediates of well-known dichromatic species, of the Wedge-tailed Shearwater, Neglected Petrel, and Rough-legged Hawk for example. They are not individual and are not dependent upon age, sex, season, or environmental conditions. Moreover, intermediates crop out sporadically in the Eastern States, where the *auratus* phase is dominant. It is well to bear in mind that these variations of the Flicker are not greater than certain other normal variations; as the age variation of the Western Gull, the sexual variation of Williamson's Sapsucker, the seasonal variation of the Marbled Murrelet, and the dichromatic variation of the Parasitic Jaeger.

The question naturally arises, whether dichromatism has often

¹ Riverside Nat. Hist., Vol. IV, pp. 8, 9.

been misinterpreted and made the basis of apocryphal species and their supposed hybridization on a grand scale. In the alleged Junco species, for instance, possibly dichromatism or polychromatism, originating in mutations, obtains along with geographic variation.

Vermivora leucobronchialis (Brewster) and *Vermivora lawrencei* (Herrick) are not overlooked in this discussion. The evidence thus far presented tends to prove that they are hybrids between two species rather than intermediates of one dichromatic species.¹ Be this as it may, hybridization between unquestionable species of birds is an abnormal and relatively rare occurrence.

To affirm that bird species are concepts, is to ignore the facts in the case. *Ammodromus samuelis* Baird and *Melospiza fallax* Baird are concepts, but *Melospiza melodia* with all its geographic variations is a reality. It is absolutely separated from *Melospiza lincolni* and *Melospiza georgiana* and all other existing bird species. *Colaptes auratus* is likewise a reality. In spite of its great dichromatic variation, it does not intergrade with any other woodpecker. It is confidently stated that the great majority of the A. O. U. 'Check-List' species are also realities, and the remainder time-honored concepts based on inconstant variations, like *Fulmarus rodgersi* Cassin, which is merely an extreme white phase of *Fulmarus glacialis* (Linnæus).²

In a word, absence of intergradation among birds results in a definite entity, the existing bird species.

¹ Cf. Faxon, Mem. Mus. Comp. Zool., Vol. XL, 1911, pp. 57-78.

² Cf. Proc. Calif. Acad. Sci., 4th Ser., Vol. II, Pt. II, 1918, p. 88.

GEOGRAPHICAL VARIATION IN THE BLACK-
THROATED LOONS.

BY A. C. BENT.

DR. JONATHAN DWIGHT's interesting paper in 'The Auk' for April, 1918, describing a new species of Loon from northeastern Siberia, has opened up a subject to which I have given considerable study without having been able to come to any satisfactory conclusion. After examining directly or indirectly some seventy specimens of Black-throated Loons, including the entire series in several of the largest collections in this country, I came to the conclusion that the necessary material was still lacking to settle satisfactorily the true status of this group.

I have long recognized the existence of a large, Green-throated Loon in the Bering Sea region; but I have postponed publishing anything on it until I could obtain enough breeding birds from somewhere in that region, to establish a more or less definite breeding range in which a more or less constant form is to be found. Now that Dr. Dwight has seen fit to open up the subject, I feel called upon to publish what incomplete data I have on the whole group.

It seems to me that there are only two alternative theories into which the known facts may be made to fit. The first and most likely theory is that there is but one circumpolar species, divided into three, or possibly four, subspecies, as hereinafter designated. To support this theory we need more material from Siberia and eastern Europe to show complete intergradation between the two intermediate subspecies, *arctica* and *suschkini*, though what material we have seems to indicate that such intergradation exists. An argument against this theory is the fact that the two extreme subspecies, *viridigularis* and *pacifica*, apparently breed side by side in northeastern Siberia and northwestern Alaska.

The second theory is that there are two species, *arctica* in Europe, with *viridigularis* as a Siberian subspecies occupying a subarctic area, and *pacifica* in North America, with *suschkini* as a Siberian subspecies occupying the Arctic coast. This theory would explain

the breeding of the two extreme forms in the same or in contiguous areas; but it would be upset by the discovery of more complete intergradation, unless such intergrades could be regarded as hybrids. A final choice between these two theories cannot be made until more material is available showing the distribution and relationships of the forms to be found in Siberia, a vast and little known region.

I will now attempt to state, roughly and in general terms, the main known facts in this complicated case and let the reader judge for himself how they fit in with the above theories. There are apparently three or four fairly well marked subspecies of Black-throated Loons, as follows:—

1. *Gavia arctica pacifica* (Lawrence), the smallest of all, in which the hind neck or nape is much lighter gray than the crown or forehead, nearly white in some cases, the black throat patch terminates below in a straight line and the metallic reflections of this patch almost always appear purplish in any light. This form occupies a breeding area which includes the whole of northern North America (which need not be more definitely outlined here), the Arctic Islands west of Greenland and the Arctic coast of Siberia for our unknown distance westward.

2. *Gavia arctica suschkini* (Sarudny), intermediate in size between *arctica* and *pacifica*, but nearer the latter, in which the colors are nearly as in *pacifica*, but with a slight tendency towards *arctica*. This form probably has a breeding range somewhere on the northern coast of Asia, but is known only from specimens taken in winter or on migrations in the Ural and Turkestan regions.

3. *Gavia arctica arctica* (Linnæus), intermediate in size, but nearer *viridularis* than *pacifica*, in which the crown and nape are uniform dark gray, the black throat patch terminates below in a point and the reflections of this patch appear either purplish when held away from the light and greenish when held towards it, or wholly purplish in any light, with considerable individual variation. This form inhabits northern Europe, and northern Asia for an unknown distance eastward and southward in Siberia.

4. *Gavia arctica viridularis* (Dwight), the largest of all, but intergrading perfectly with *arctica*, in which the crown and nape are colored as in *arctica*, the black throat patch terminates below

in a point and the reflections of the throat are usually more greenish than in the others. I have yet to see a specimen in which more or less purple reflections could not be found. Even Dr. Dwight's type shows "slight purplish tints." This form, if it is a good subspecies, has no well defined habitat; but what specimens I have seen would seem to indicate a breeding range on both sides of Bering Sea, which may extend for a considerable distance westward into the interior of Siberia.

The above arrangement may appear satisfactory to the casual observer, but the trouble with it is that all of the above characters, particularly those on which Dr. Dwight bases his new species, are decidedly variable and inconstant. Size is the most satisfactory character but even this shows intergradation or overlapping and greater individual variation in each group than the differences in averages between the groups. The measurements, in inches, of the four forms, which I have taken or had sent to me, are as follows:—

Gavia arctica pacifica (Lawrence).

- 12 males from North America, east of the Mackenzie River,
 average, bill 2.14 wing 11.65
 largest, " 2.32 " 12.42
 smallest, " 1.93 " 10.80
- 13 males from North America, west of the Mackenzie River,
 average, bill 2.06 wing 11.66
 largest, " 2.20 " 12.50
 smallest, " 1.87 " 10.50

Gavia arctica suschkini (Sarudny)

- 5 males from Turkestan,
 average, bill 2.35 wing 12.40
 largest, " 2.60 " 13.35
 smallest, " 2.20 " 11.80

Gavia arctica arctica (Linnaeus)

- 6 males from Europe,
 average, bill 2.44 wing 12.24
 largest, " 2.62 " 12.75
 smallest, " 2.30 " 12.

Gavia arctica viridigularis (Dwight)

4 males from Bering Sea region,
average, bill 2.63 wing 12.69
largest, " 2.87 " 13.
smallest, " 2.50 " 12.

The other characters are equally confusing. The nape is lightest and almost constantly so in North American *pacifica*; it is darkest in *viridigularis* and more or less intermediate in many specimens of the other two forms.

The black throat patch terminates below in a straight line almost invariably in North American *pacifica*; I have seen but one exception to this rule; but in Siberian *pacifica* this character is less constant. In *viridigularis* this patch terminates below in a decided point, in all specimens that I have seen. In European *arctica* about half of the specimens I have seen have the patch decidedly pointed below and the others have it nearly straight or only slightly pointed.

The colored reflections of the black throat-patch are the most variable and inconstant of all the characters. In *viridigularis* three of the specimens examined show mainly greenish colors but even these show some signs of purple; and in one, a bird in my own collection, the colors are about equally divided. In European *arctica* about half of the specimens show mainly purplish reflections, while fully half show both purplish and greenish. In North American *pacifica* the purplish reflections predominate, but five specimens out of twenty-two show more or less greenish in certain lights. Mr. Waldron DeWitt Miller, in sending me descriptions of Pacific Loons in the American Museum, used the following terms in designating the colors of the throats; greenish-blue, bluish-green, dark greenish-blue, violaceous and dark violet. It can be easily seen from the above that the colors are very variable.

Dr. Dwight says, in his diagnosis of *viridigularis*:—"The green coloration of the throat is the essential character that sets this species apart from *arctica* and its races, which all have purple throats." In the light of the facts stated above this "essential character" disappears and his new species must be reduced to the

rank of a subspecies at least. Even a subspecies must prove to be fairly constant in a more or less definite range. The range of *viridigularis* is very imperfectly known; the four specimens, referable to this form, that I have seen were taken at Nijni Kolymsk, Siberia, St. George Island, Bering Sea, Nome and Saint Michael, Alaska; Dr. Dwight's specimens all came from northeastern Siberia. The Nijni Kolymsk bird, referred to above, is somewhat intermediate between *viridigularis* and *arctica*; if it had been taken in Europe it would probably be referred to the latter. I also have a perfectly typical *pacifica* from the Kolyma River, Siberia.

I have seen birds from Victoria, B. C., from Finland and from Norway which closely approach this new form, *viridigularis*, in size and color characters. If we had a larger series of *arctica* from Europe and Asia available for comparison, we could perhaps match these birds exactly and we could certainly show, if I have not already demonstrated it, that *viridigularis* is merely a subspecies of *arctica*. To use Dr. Dwight's own terms, the green throat seems to be a quantitative rather than a qualitative character.

REASONS FOR DISCARDING A PROPOSED RACE OF THE GLAUCOUS GULL (*LARUS HYPERBOREUS*).

BY JONATHAN DWIGHT, M. D.

IN discussing the moults and plumages of the Glaucous Gull, a dozen years ago I took occasion to bury "*Larus barrovianus*" among the synonyms of *Larus hyperboreus* (then known as *glaucus*) because the alleged characters seemed to me to afford insufficient grounds for recognizing even a subspecies (Auk, XXIII, 1906, p. 29). Later, in the 1910 edition of the A. O. U. 'Check-List,' the Committee on Nomenclature and Classification adopted my view of the case and discarded "*barrovianus*"; but recently Dr. H. C. Oberholser has seen fit to dig it up and it is revived, somewhat impressively, as a subspecies of *hyperboreus* (Auk, XXXV, 1918, p. 472).

If it were not for certain aspects of the matter I would merely reaffirm my convictions of 1906; for it is a question whether Dr. Oberholser has added anything new to the original claims made by the describer, Mr. R. Ridgway (Auk, III, 1886, p. 330). This does not seem to be the case, for his diagnosis is virtually a restatement of Mr. Ridgway's, except that a supposed character of the bill is discarded on evidence I submitted in 1906. My measurements had shown that this character, namely, "depth through the angle never less and usually decidedly greater than through the base," was not diagnostic, but this was not my only "evident reason" then for rejecting "*barrovianus*" as Dr. Oberholser now wrongly assumes. What I said was that this form "is scarcely 3% smaller [than *glaucus*] in size and 4% smaller in bill" and furthermore, I said; "It is true that the largest specimens of *barrovianus* never quite reach the dimensions of the largest *glaucus*, but overlapping of size is so considerable even when careful comparison of sexes is made that without first reading the labels one cannot, except in a very few cases, tell whether a bird is from Greenland or Alaska. The variation in the size and shape of the bill in gulls is very great and a few millimeters difference in wings that are as long as one's arm is hardly ground on which to rest a subspecies, much less a full species."

These conclusions may be contrasted with Dr. Oberholser's recent diagnosis which reads, "Similar to *Larus hyperboreus hyperboreus*, but smaller, the bill particularly so and relatively as well as actually more slender; mantle decidedly darker; and the line of demarcation between the white tips to the primaries and the pale grayish basal portions usually more evident." I would here call attention to the fact that the "line of demarcation" is not a distinct character but a corollary of the preceding, for the color of the mantle in the Glaucous Gull regularly runs over, so to speak, into the wings, and a darker mantle would mean darker bases of the primaries and therefore greater contrast as a matter of course. Consequently, in the final analysis there are two characters and only two on which "*barrovianus*" rests,—(1) darker mantle and (2) smaller size, especially of the bill. I will invite attention to a new estimate of the value of these characters.

1. As for the color of the mantle, which Mr. Ridgway calls

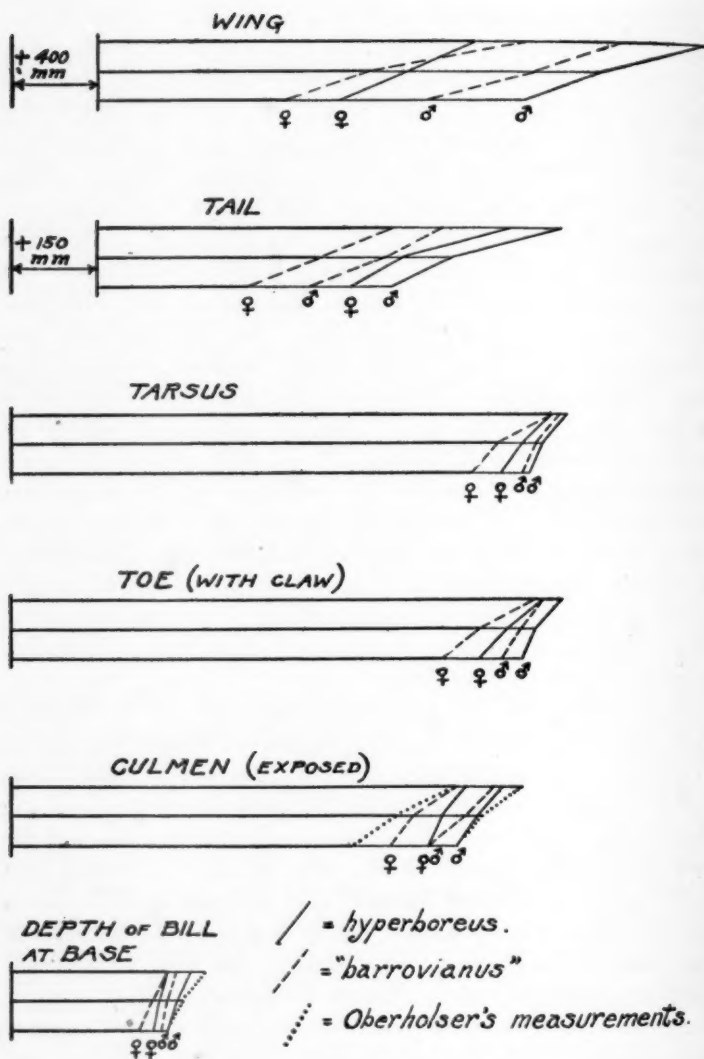


Fig. 1. Diagrams showing relative measurements in millimeters of 31 adult specimens of *Larus hyperboreus* and its alleged race. Top line shows actual length in largest birds, middle line shows average, and bottom line shows smallest of the series.

"somewhat" and Dr. Oberholser "decidedly" darker, I can only say that my series fails to support either of these statements. I find that if comparison of *like stages* of plumage be made, birds from Greenland are quite as dark as Alaska specimens and conversely Alaska birds are as pale as those from Greenland. It is, perhaps, a matter of more than passing interest that the majority of adult Greenland birds in the collections I have seen are in worn faded plumage while most of the Alaska material is in fresh dark plumage. One might easily get the impression that the darker birds represent a race unless due allowance is made.

It may not be generally known that the adult Glaucous Gull moults twice in the year, a complete postnuptial moult beginning toward the last of July and extending over nearly two months and a prenuptial in March and April which involves most of the body feathers but not the wings nor the tail. Between moults the mantle fades and looks even paler than it is in color because of the worn and whitened feather edges. There is some individual variation in the depth of color in freshly moulted specimens, whether from Greenland or Alaska, but both may be equally dark and they may become equally pale after the lapse of a few months. I have examined birds taken nearly every month in the year and I am at a loss to understand how Dr. Oberholser finds a "decidedly darker" race unless he has unwittingly compared birds of unlike stages of plumage.

2. As for size, this is a question of relative dimensions that permits some latitude of opinion, so that a new presentation of the facts seems desirable.

My early table of measurements (Auk, XXIII, 1906, p. 28) based on 31 adults (14 of them males and 17 females) is accepted by Dr. Oberholser "except for dimensions of the bill which have been remeasured for the present use." I have reproduced all of these measurements by the graphic method (Fig. 1) and anyone may see, almost at a glance, what the variations of size in the Glaucous Gull actually are. The diagrams are drawn to scale, the upper horizontal line representing the actual size of the largest specimens, males and females, the middle line the mean or average size and the lower line the smallest specimens. The oblique solid lines represent *hyperboreus*, the broken lines "*barrovianus*" and

the dotted lines Dr. Oberholser's remeasurements of the bill. His "depth of bill" for "*barrovianus*" is the same as mine and therefore cannot be separately plotted. He does not tell us from what series he made the remeasurements that do not tally with mine, but the figures suggest that it may have been a small one and with an unusual proportion of very large and very small birds, possibly wrongly sexed in some cases.

The original series that I measured was composed of breeding birds from Greenland and from Alaska which formed a small part of the 200 specimens I had then gathered together for comparison. Although they are now widely scattered, some of them (as well as new specimens) are still either in my collection or in that of the American Museum of Natural History. A reëxamination and remeasurement of them (68 in all, 39 being adults) confirms to a surprising degree my earlier measurements and conclusions. Individual variation is greater than the supposed subspecific values and the overlapping of size is marked. Birds as large as these Gulls, it must be remembered, may not be measured with unfailing accuracy, especially when different persons attempt it, for specimens are often greatly worn, the wings or tail are sometimes not quite grown and often the feathers are bent and broken. It is not unusual to find a variation of five to ten or more millimeters between the right and left wing of the same bird, due to the make-up of the skin, while tarsi and toes of opposite legs may be bent very much out of shape in drying. Where such variation exists, one may to advantage measure each wing or foot separately and strike an average as I have done in many cases.

Turning finally to the bill, I would call attention to the sketch (Fig. 2) which shows the average adult bill of the male of *hyperboreus* contrasted with that of "*barrovianus*." When one realizes that the variation in the bills of all female gulls is much greater than that of the males and that young birds only very slowly acquire adult dimensions, it becomes evident that "*barrovianus*" is not "very readily recognizable by its usually smaller size and particularly smaller bill." One may guess cleverly that large birds belong to one race and small ones to another, but without reference to the labels the guesses may be astray by a continent's width.

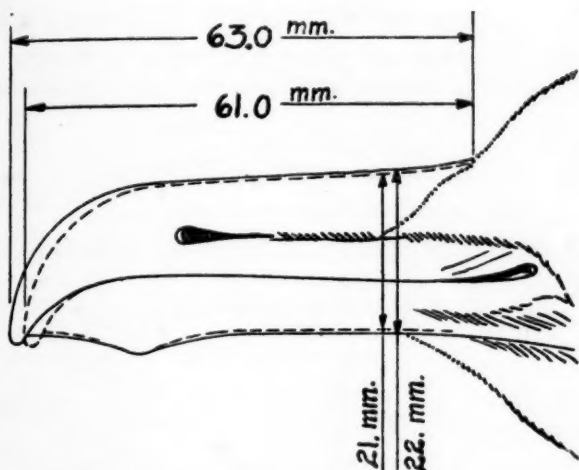


Fig. 2. Bill of average *Larus hyperboreus*, male, life size, drawn to scale. The broken line shows the bill of the alleged race.

So far as I can see the case of *barrovianus* stands where it did in 1906 and it is a pity that there should have been any need of reopening it. Fortunately the merits of this and similar cases do not rest upon individual bias, but they are determined by the A. O. U. Committee which, as far as North American birds are concerned, acts somewhat as a supreme court rendering verdicts according to evidence presented. Let us hope they will give us "safe and sane" subspecies rather than the shadowy indefinite groups of averages that too often are named as geographical races. It should be remembered that while a name is a handle to a fact, too many handles would make a door or a basket perfectly useless. Ornithology will become a wilderness of handles if every difference is named at sight,—a wilderness of subspecies founded more on hasty opinions than on digested facts. A step farther and we shall have the psychological subspecies in which the expectant mental attitude of the subspecialist (if I may be pardoned the word) will play the most important rôle. In our gropings after the truth it is wasteful of too much time to spend so much of it stumbling over names of groups so poorly defined that they convey only a vague meaning to a few specialists and none at all to every-

body else. Decking the subspecies in all the glittering panoply of diagnosis, dimension, and distribution makes of it an impressive spectacle, but this does not necessarily make of it a good subspecies.

THE BIRDS OF THE RED DEER RIVER, ALBERTA.

BY P. A. TAVERNER.¹

(Continued from p. 21.)

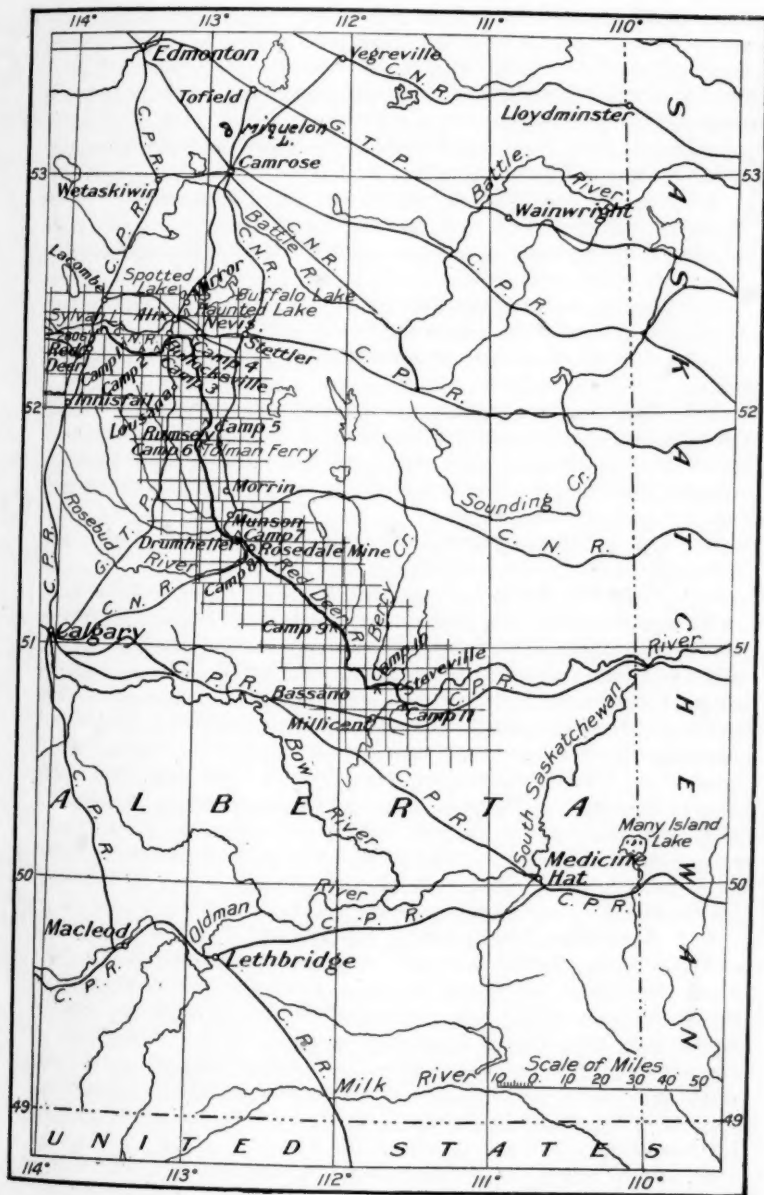
SINCE the first part of this paper went to press, I am in receipt of a series of notes from F. L. Farley, now of Camrose but formerly of Red Deer. His observations extend from 1892 to 1906 at the former locality and from then to date at the latter. They consist chiefly of lists of spring arrivals but have been supplemented by further details in correspondence. I have also received some comments upon the list as published from J. H. Fleming. The pertinent new information is embodied in the following continuation and the Addenda at the end.

80. **Ceryle alcyon.** BELTED KINGFISHER.—We found the species rather scarce on the river. This is probably accounted for by the cloudiness of the water which hides the fish. One bird was seen near Camp 4 near Nevis and Young recorded two at Camp 11 at Little Sandhill Creek. We have three birds taken by Geo. Sternberg at Morrin, August and September, 1915. Horsbrough records the Kingfisher nesting at Red Deer and Farley notes it occasionally at Camrose.

81. **Dryobates villosus.** HAIRY WOODPECKER.—Not very common anywhere but more seen in the upper parts of the river in the wooded sections than lower down. Singles or pairs seen at camps 1, 4, 6 and 8½. Specimen from Camp 1 also one from Rumsey, September 24, 1915, taken by Geo. Sternberg and another from Buffalo Lake, November 9, 1914, by Horsbrough who reports nest at Sylvan Lake. I ascribe them all by their large size to *leucomelas*. One specimen in Fleming's collection lately examined by me overmeasures any *D. v. leucomelas* I have previously seen, having a wing 140 mm. Our next largest specimen is but 132.

82. **Dryobates pubescens.** DOWNY WOODPECKER.—Not seen by us but both Horsbrough and Farley report it as a common resident and a

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breeder. The former refers the local form to *D. p. nelsoni*, probably on geographical grounds for we have an Edmonton specimen, August 13, 1886, that has been identified by Oberholser as *homorus*. A female, Red Deer, April 19, 1916 in Fleming's collection agrees so closely with larger specimens from New Brunswick and eastern Ontario that I see no grounds for separating it from them and following Oberholser's determination of a Banff bird August 13, 1891, ascribe it to *D. p. medianus*.

83. **Picoides arcticus**. ARCTIC THREE-TOED WOODPECKER.— Under the subspecific designation, *P. a. arcticus*, Bangs lists five specimens, without date (collections of Wm. Brewster, and E. A. and O. Bangs) from Red Deer, Auk, XVII, 1900, -139.

84. **Picoides americanus**. AMERICAN THREE-TOED WOODPECKER.— Mr. Farley reports taking a specimen in winter at Red Deer. He makes no subspecific determination. Geographically *P. a. fasciatus* is the probability.

85.* **Sphyrapicus varius**. YELLOW-BELLIED SAPSUCKER.— Quite common on the upper parts of the river but as the country grew more arid it became scarcer and none were seen below Camp 5. One specimen, a female with black cap, Camp 1, June 30. Horsbrough records it breeding.

86. **Phloeotomus pileatus**. PILEATED WOODPECKER.— Farley says he knows of a few having been killed at Red Deer in winter.

87.* **Colaptes auratus**. FLICKER.— Common throughout the river as far as we travelled. Of the four birds taken by us and by Geo. Sternberg at Morrin but one is a pure *auratus*, the remaining specimens all having slight to strong traces of *cafer* blood indicated by the color of the large shafts, the graying of the throat or red in the black moustache. Near Camp 1, Young saw what he thought to be a red-shafted Flicker and doubtless birds that are more strongly *cafer* exist in the region, though *auratus* seems to be the predominating influence. Two birds, May 2 and July 17 Red Deer in Fleming's collection are pure *auratus*. Farley says he has seen nothing at either Red Deer or Camrose that he can ascribe to *cafer*. It would seem that the *cafer* influence is farther reaching on the lower than the upper parts of the river. Horsbrough on a guarded suggestion from Fleming refers his specimens to *C. a. borealis*.

88.* **Chordeiles virginianus**. NIGHTHAWK.— Though rather rare at Camp 1, the Nighthawk became more abundant as we descended the river. None could be collected however, until Camp 11 was reached, where breeding birds were also noted. Our single bird, July 30, is considerably lighter even than several *hesperis* as identified by Dr. Oberholser. I therefore tentatively refer it to *sennetti*. I suspect that this is the form of the arid southern sections, as a Red Deer Bird collected by Sternberg, June 4, 1915, is evidently *virginianus*, as is another from Banff determined by Oberholser.

89. **Archilochus** or **Selasphorus**. HUMMINGBIRD.— Mr. Farley reports having seen one Hummingbird at Red Deer the summer of 1892.

He thought it a Ruby-throat at the time, but this requires confirmation by specimens for confident acceptance.

90.* **Tyrannus tyrannus.** KINGBIRD.—Rather scarce on the upper parts of the river. At Camp 1, we noted but a single bird, and until Camp 4 but occasional individuals were glimpsed in the distance. Below Camp 4, near Nevis, however, Kingbirds became common. The last one seen was September 7. Two specimens, Camps 4½ and 11.

91.* **Tyrannus verticalis.** ARKANSAS KINGBIRD.—Only seen at Camp 11 after I left. Young says "Not as common as the Kingbird." Three taken July 31. Not listed by either Horsbrough or Farley. Probably an inhabitant of the more southern sections of the river.

92.* **Sayornis phœbe.** PHŒBE.—Not uncommon as far down the river as Camp 6, Tolman's Ferry, but not noted below. One specimen, Camp 2.

93.* **Sayornis sayus.** SAY'S PHŒBE.—One pair were nesting near the top of a cliff near Camp 2, and seen again the next day while en route. At Camp 6, Tolman's Ferry, Young found it nesting in the adjoining hills and took a specimen. From then on they were seen almost daily and at Camp 11, Little Sandhill Creek, they were quite common. It nests on small ledges on the cliff faces and seems rather more common in the arid than the humid country. Specimens from Camps 6, 8 and 11, the last being September 14. Not mentioned by either Farley or Horsbrough.

94. **Nuttallornis borealis.** OLIVE-SIDED FLYCATCHER.—Farley reports this species at Red Deer, May 22, 1905.

95.* **Myiochanes richardsoni.** WESTERN WOOD PEWEE.—Wood Pewee-like notes were heard constantly about Camp 1, but the birds were so shy that one was collected with difficulty. The notes were much like those of our eastern Wood Pewee but different enough in quality to be distinctive. They were not noted often thereafter but from August 6 to 25, Young took several at Camp 11, on Little Sandhill Creek.

96.* **Empidonax trailli.** TRAILL'S FLYCATCHER.—On the uplands about Camp 1, in the thickets adjoining sloughs, this species was recognized a number of times. Thereafter we were seldom in proper country for it. At Camp 11 on the Little Sandhill Creek, Young collected specimens, August 9 and 11, probably early migrants. Both are referable to *E. t. alnorum*. Farley lists it at Red Deer and Camrose.

97.* **Empidonax minimus.** LEAST FLYCATCHER.—Common all along the river. Specimens taken at Camps 3, 3½, 5 and 11.

98.* **Otocoris alpestris.** HORNED LARK.—We saw no Horned Larks until Camp 11 on the Little Sandhill Creek was reached, where Young reports that he found them common on the flats of the north side of the river feeding on wild buckwheat. Fourteen specimens were taken between July 26 and September 20. These are all *leucolæma* as recognized by the A. O. U. or *enthermia* according to Oberholser and Ridgway.

99.* **Pica pica.** MAGPIE.—One of the pleasures of the trip was acquaintanceship with this bird. We heard of occasional Magpies being

seen about Camp 1, but did not meet with them personally until between Camp 5 and 6 when we found a family party of partially fledged birds discussing the world and things in general in the Saskatoon bushes. "Chattering like a Magpie" hardly gives a clear idea of the performances. They keep it up continually in season and out, but the talk is deliberate rather than "chattering." They are never still for a minute and their curiosity is insatiable. Every morning our camp was the center of interest and conversation to a group of these long-tailed clowns, uniting the gravity of judges with the talkativeness of a debating society. At Camp 11 a nearby creek bed cut down some twelve feet below the general level and dry and parched in the sun was the repository of our empty cans and table scraps. Magpies were always in attendance and no sooner had the falling can ceased its noisy rattling and come to rest than a "Pie" was on hand to glean what it might from its depths. They seemed to go in small companies, probably original families though perhaps in some cases more than one brood had joined together and haunted the brush in the wooded river edges or the low dense tangle on hill tops sailing from clump to clump and furtively following one another from cover to cover. Their nests were conspicuous objects in the heavier bush. Great oval masses of sticks four or five feet high and two or three feet through with the nest in the center reached by openings in opposite sides for ingress and egress. The fact that we invariably found them in the neighborhood or not more than a hundred yards or so from nests of Red-tail or Swainson's Hawks may or may not have a meaning; nor is it clear, if it is more than accidental, which — the "Pie" or the hawk — was first to choose the locality. Specimens were obtained at Camps 5½ and 11 while we have others from Rumsey and Morrin collected by Geo. Sternberg.

Farley, Horsbrough and Dr. George of Red Deer, all declare that this species is increasing. Farley writes, — "No one knew this bird ten years ago and for the past few years a month does not pass that some one does not ask about it. I think this about its limit line as I never saw or heard of one farther north than ten miles from Camrose."

100.* *Cyanocitta cristata*. BLUE JAY.— Fairly common on the upper parts of the river but not seen below Camp 4, near Nevis. One specimen, Camp 1. Reported nesting by Horsbrough.

101. *Perisoreus canadensis*. CANADA JAY.— Spreadborough's hypothetical record of this species at Red Deer is substantiated by Farley who says he found two nests of the Canada Jay ten miles east of Red Deer, the eggs from which he sent to W. E. Saunders of London, Ont. According to Oberholser's determinations these birds should probably be referred to *P. c. canadensis*.

102. *Corvus corax*. RAVEN.— Farley says, — "The Raven is seen nearly every November at Red Deer. I have never seen them brought in except in early winter."

103.* *Corvus brachyrhynchos*. AMERICAN CROW.— Only fairly common in the narrow parts of the valley where the river is in closer

proximity to cultivation. Below, where the valley is wide, and more arid conditions prevail, it was but occasionally seen. Young reports, at Camp 11 on the Little Sandhill Creek after the middle of September, that they appeared in large flocks. The farmers about Camp 1 did not regard the crow as dangerous to crops but complained of the number of small chickens they kill and the duck nests they rob. Specimens from Camp 8½ and 11, also Morrin, October, 1916, Geo. Sternberg and Alix, April 24, 1914, Horsbrough. Amongst our prairie province specimens I can find little to substantiate the Western Crow, *hesperis*. The birds of smallest measurement in our collections come from Ottawa and Point Pelee, Ontario; Red Deer, Alberta; and Lillooet, British Columbia, whilst our largest specimens are from Ottawa and Indian Head, Saskatchewan. Even the averages from eastern and western Canadian specimens are too similar for the recognition of any subspecies. I therefore prefer to class these birds with the type form *brachyrhynchos*.

104.* **Molothrus ater.** COWBIRD.—Rather scarce. We saw but two at Camp 1. Young took a specimen at Camp 11 on the Little Sandhill Creek, August 2. We also have one bird from Morrin, July 1916, taken by Geo. Sternberg. The bird from Camp 11 is a juvenile but extraordinarily heavily striped below, almost as conspicuously so as a juvenile Red-wing. Above, every feather is bordered with sharp buffy edges. The Morrin bird is similar but does not depart from normal in so marked a degree. As these are both juveniles their measurements are not satisfactory for subspecific comparison. Examining our series of western Cowbird specimens I can only see that they average slightly larger than eastern ones. The bills are comparatively a little longer but the concave character shown by Grinnell as characteristic of *artemisia* is not recognizable even though the sage brush *Artemisia tridentata* with which its range is supposed to coincide extends far north of here to the Peace River Valley. Without further data I can only regard these Red River birds as abnormal *ater*.

105. **Xanthocephalus xanthocephalus.** YELLOW-HEADED BLACKBIRD.—Not seen by us owing probably to the absence of extensive marshes in the localities visited. Geo. Sternberg reports having seen one at Camp 11 before our arrival. Mr. Farley lists it at Red Deer and Camrose.

106.* **Agelaius phoeniceus.** RED-WINGED BLACKBIRD.—Not very common but occurring in most of the suitable localities visited by us. More common on the prairie level where sloughs are more numerous than in the valley. Specimens from Camp 1 and 4. After comparing these and other prairie specimens with eastern birds I can only say that there is a larger percentage of oversized birds amongst them than in the East. I can see no constant difference in the bills and hence am not justified in referring them to anything but *phoeniceus*. Horsbrough refers his, probably on geographical considerations to *P. a. fortis*.

107.* **Sturnella neglecta.** WESTERN MEADOW LARK.—We did not find this bird very common in the river valley and not overly numerous

upon the prairie levels when they were visited. Later in the season, Young reports that they were common at Camp 11 in early morning when they came down from the Prairie level to drink at the river. Specimens from Camp 1 and 11, also two Morrin birds, August and July, Geo. Sternberg.

108. *Icterus galbula*. BALTIMORE ORIOLE.—Horsbrough records the nesting of the Baltimore Oriole at Red Deer and Farley pronounces it common. Neither seem to be acquainted with Bullock's. In our collections are specimens of *galbula* from Edmonton and *bullocki* from Medicine Hat where, however, Spreadborough also noted the former. Possibly the division between the two occurs somewhere between the two cities and the Baltimore is the form at Red Deer.

109.* *Icterus bullocki*. BULLOCK'S ORIOLE.—Only two orioles seen and those of this species. Taken at Camp 11, Little Sandhill Creek, August 29.

110.* *Euphagus carolinus*. RUSTY BLACKBIRD.—One specimen, Alix, Alberta, April 22, 1914, by Horsbrough who infers in his annotations that it is only a migrant at Red Deer though Farley reports it as with Brewer's,—“a very common spring and fall migrant and quite plentiful breeding along the streams in the willows.” I was hardly prepared to regard this as a breeder in this locality.

111.* *Euphagus cyanocephalus*. BREWER'S BLACKBIRD.—Generally distributed throughout the river valley but nowhere exceedingly common. Young noted a large migrant flock at Camp 11, Little Sandhill Creek, the middle of September. Specimens, Camp 1 and 11. Farley reports it breeding along the streams in the willows.

112.* *Quiscalus quiscula*. CROW BLACKBIRD.—Only a few seen at Camp 1, about Brock's Lake where they were nesting in Flicker holes. One specimen, Camp 1, another Buffalo Lake, August, 1915.—Horsbrough. Regarded as common by all correspondents.

113. *Hesperiphona vespertina*. EVENING GROSBEEK.—Farley says, —“The Evening Grosbeak is not regular in winter. It comes for about a month about every other winter, always feeding on the seeds of the Manitoba Maple.” Red Deer Specimens, May 6, in Fleming's collection.

114. *Pinicola enucleator*. PINE GROSBEEK.—Farley says,—“Pine Grosbeaks are fairly common all winter especially along the rivers in the spruce,—never saw them after May 1.” Horsbrough lists them under *P. e. leucura* on J. H. Fleming's determination based upon a bird with an imperfect bill. I have examined this bird but the subspecific characters are so faintly indicated in our comparative series that I prefer to withhold judgment upon the determination.

115.* *Carpodacus purpureus*. PURPLE FINCH.—Not seen on the upper river at all and at Camp 11, Little Sandhill Creek, only after I left. Young reports that beginning August 18, he noted one to five daily to September 7. He observes that they were feeding on the seeds of the black birch. One specimen, Camp 11, August 18. Listed by Farley as

common at Red Deer though Horsbrough gives only individual records.

116.* **Loxia curvirostra.** AMERICAN CROSSBILL.—One specimen taken at Camp 11, Little Sandhill Creek, July 21. It is a juvenile with clear skull but with the red beginning to replace the yellow plumage. About the face and throat is a powder deposit similar to that on a Jasper Park bird that was feeding upon woolly aphides suggesting that this bird was subsisting upon a similar diet. Farley regards it as common all winter, and I infer regular, but "never noted after May."

117. **Leucosticte tephrocotis.** ROSY FINCH.—Farley says,—“I have seen the Leucosticte in November around the coal mines in the Red Deer valley where you go under the C. P. R. bridge. They were the tamest birds I ever saw and I suppose had just blown down from the tops of the mountains.” He later informed me that he sent a specimen to W. E. Saunders, London, Ont., who pronounced it Gray-crowned *L. t. tephrocotis*.

118. **Acanthis linaria.** REDPOLL.—Both Horsbrough and Farley report Redpolls in winter. The former identifies them as *A. l. linaria* and the latter says he “cannot say that he has been sure of more than one kind,” he thinks, “the smaller one.”

119.* **Astragalinus tristis.** AMERICAN GOLDFINCH.—Seen in limited numbers all along the river. At Camp 11, Little Sandhill Creek, Young reports large flocks feeding on the seeds of the wild sunflower *Helianthus petiolaris* in early September. One specimen from Camp 1 and four from Camp 11. All these birds are of a slightly deeper and richer yellow than eastern ones. The difference, however, is very little and only appreciable when numbers are massed together. I do not think that individual specimens can be recognized. In size there are more large birds in the western series, but the extremes in size, east and west, exhibit little, if any, difference. Under such circumstances I cannot see that it is worth while recognizing the Pale Goldfinch, *pallidus* in these specimens. Horsbrough refers his specimen to “*A. t. tristis*. Pale Goldfinch” (sic). With this conflict between scientific and vernacular terminology, it is left to surmise which he intends.

120.* **Spinus pinus.** PINE SISKIN.—A small flock seen at Camp 3. One at Camp 11, Little Sandhill Creek, August 15 and 22. Specimens, Camp 3 and 11. Given as winter visitor by both Horsbrough and Farley.

121.* **Calcarius lapponicus.** LAPLAND LONGSPUR.—Seen at Camp 11, Little Sandhill Creek, between September 10 and 15. Specimens, September, 13 and 15. Farley gives many April dates for both Red Deer and Camrose.

122.* **Calcarius ornatus.** CHESTNUT-COLLARED LONGSPUR.—One seen, July 26 at Camp 11, Little Sandhill Creek, becoming fairly common September 10 to 13 then no more until the 20th when two were noted. Specimens Camp 11, July 26 and September 13. Farley reports them very common in May and in autumn but does not remember them in summer.

123.* *Poecetes gramineus*. VESPER SPARROW.—Rare along the river valley but common whenever we visited the upper levels. Young reports it common up on the prairie and along the creek beds at Camp 11, Little Sandhill Creek. Nine specimens from Camps 1, 6, 8 and 11. They are obviously referable to *P. g. confinis*.

124.* *Passerculus sandwichensis*. SAVANNAH SPARROW.—Quite common in the more cultivated sections but scarce or absent over much of the river valley. At Camp 11, Little Sandhill Creek, very scarce at first, only two seen in August, but began to be numerous late in September. 13 specimens, Camps 1 and 11. Two types of coloration are exhibited in these specimens. Those from Camp 1 are all yellow eyebrowed birds, while amongst those from Camp 11 occur yellow and white eyebrows. Until a detailed study is made of Canadian Savannah Sparrows I do not care to make subspecific determination. *P. s. alaudinus* is the generally accepted form in Canada west of Ontario.

125.* *Passerherbulus lecontei*. LECONTE'S SPARROW.—But one recognized near Camp 1, in a dry slough. Young found occasional scattered individuals at Camp 11, Little Sandhill Creek, two of which were in marshes on the upper levels, the remainder being in the desert lowlands. It is evident from the specimens obtained that the species has a distinct juvenile plumage composed of soft golden stripings quite different from the first winter plumage which is similar to that of the adult spring coloration. Specimens from Camp 1 and 11. Farley knows the species and does not regard it as rare.

126. *Passerherbulus nelsoni*. NELSON'S SHARP-TAIL.—Farley reports shooting this species for identification and finding it quite common in the open country around large flat sloughs.

127.* *Chondestes grammacus*. LARK SPARROW.—Fairly common at Camp 11, Little Sandhill Creek, not seen elsewhere or after August 17. Specimens from Camp 11. I am not prepared with eastern specimens to differentiate between the two races *grammacus* and *strigatus*. Neither Farley nor Horsbrough mentions this species at Red Deer and it probably does not occur there regularly.

128.* *Zonotrichia leucophrys*. WHITE-CROWNED SPARROW.—Not noted until September 3, Camp 11 on the Little Sandhill Creek. Young reports them quite common then along the river feeding on dogwood seeds and Buffalo berries. Four specimens Camp 11, September 3 to 12. Only one of these is in high plumage. It is obviously *Z. l. gambeli* and all are inferentially included under the same subspecies. Listed as a common migrant by Farley.

129.* *Zonotrichia albicollis*. WHITE-THROATED SPARROW.—Quite common and evidently breeding on the upper part of the river, but not noted below Camp 4 near Nevis, until they put in an appearance at Camp 11, on the Little Sandhill Creek, August 22, when Young met limited numbers with fair regularity. Specimens from Camp 1 and 11.

130. *Spizella monticola*. TREE SPARROW.—Listed as a common

migrant by Farley at Red Deer and Camrose. Horsbrough records spring birds under title of *S. m. ochracea*.

131.* **Spizella passerina**. CHIPPING SPARROW.—Unexpectedly absent from the upper parts of the river. Young reported one at Camp 4 but it was not until we reached Camp 11 on the Little Sandhill Creek that we met them again. Here they were quite common and remained so until the first week in September. Four specimens from Camp 11, July 20, 27 and 28. I refer them to *S. p. arizonæ*.

132.* **Spizella pallida**. CLAY-COLORED SPARROW.—Common everywhere along the river,—the only generally common sparrow. Specimens from Camps 1, 5 and 11.

133.* **Junco hyemalis**. SLATE-COLORED JUNCO.—Fairly common and breeding as far down the river as Camp 4, near Nevis. Below, they became less numerous and none were seen below Camp 6 at Tolman's Ferry, until the migrants came in September 17. Specimens from Camps 1 and 11. These birds show no tendency towards either pink sides or red backs and can only be referred to *J. h. hyemalis*.

134.* **Melospiza melodia**. SONG SPARROW.—Common throughout the entire trip. 15 specimens from Camps 1, 2, 3, 4, 5, 6, 8 and 11; also one July 20, Morrin,—Geo. Sternberg. Though much more worn and hardly comparable with other material on hand, these specimens are just what would be expected from much abraded *juddi*. Specimens from Camps 5, 8 and 11 and Morrin are considerably darker than the others, reversing the expectation that light not dark birds would be found in the more arid sections. Horsbrough lists his specimens as *M. m. melodia*. It is not evident whether he has considered *juddi* or not.

135.* **Melospiza lincolni**. LINCOLN'S SPARROW.—Not seen until August 25 at Camp 11 on the Little Sandhill Creek. They gradually grew more common until September 5 when they became very numerous in open woods and low lands and especially so on the prairie level. One specimen from Camp 11. Though not mentioned by Horsbrough, Farley regards Lincoln's Sparrow as a not uncommon breeder at both Red Deer and Camrose, saying,—“It appears to be regularly distributed but not thickly. I can always depend on hearing at least one every few miles in scrubby country and have watched a pair all through the summer in the same brush so am sure they breed.”

136. **Melospiza georgiana**. SWAMP SPARROW.—Reported by Farley from Red Deer as not common.

137.* **Passerella iliaca**. FOX SPARROW.—Reported by W. E. Saunders at Red Deer in June 1906, in ‘Catalogue Canadian Birds,’—J. and J. M. Macoun, 1909, not seen by us. Farley says,—“The Fox Sparrow is a regular breeder in localities. Have known several places where they breed regularly,—as many as a dozen pairs on a mile square. In such places their song is the commonest of any bird.” These are probably *P. i. iliaca*.

138.* **Pipilo maculatus**. SPOTTED TOWHEE.—Towhees were not

observed until we reached Camp 5, Ross's Ranch, where they suddenly became quite common, thus putting in an appearance with the first decidedly arid conditions. They remained common the rest of the trip. The spotted Towhee has a varied vocal repertoire. While many of its notes are strongly reminiscent of the Chewink, none are exactly similar and it has many peculiar to itself. The familiar Che-week was not heard but the "ya-ree-ee-e" song was quite recognizable with slight but obvious variation. Six specimens from Camps 5, 6, 8 and 11. Naturally all are referable to *P. m. arcticus*. Towhees are not mentioned by either Horsbrough or Farley. Probably this is another species whose limit is south of Red Deer.

139.* **Zamelodia ludoviciana.** ROSE-BREADED GROSBEEK.—One seen and taken at Camp 1 but not noted again until August 19 and 20 at Camp 11 on the Little Sandhill Creek when singles were observed. Juveniles and females seem to differ from those of the Black-headed Grosbeak only in the absence of traces of lemon yellow on the under parts. The Camp 1 specimen is peculiar in having a large bright red throat patch in addition to the usual breast spot. I have seen indications or suggestion of this in other specimens but in none others examined has it been entire and pronounced. Specimens from Camps 1 and 11. Reported nesting at Red Deer by Horsbrough.

140.* **Zamelodia melanocephala.** BLACK-HEADED GROSBEEK.—Only seen at Camp 11 during August where Young reports it as being not uncommon. Specimens from Camp 11, August 11. Not mentioned by any Red Deer correspondent, probably of more southern distribution.

141.* **Piranga ludoviciana.** WESTERN TANAGER.—Only a few seen by Young at Camp 11, on the Little Sandhill Creek the last of August and first of September. Specimens August 21 and 25. Dippie reports skins and eggs from Red Deer and Horsbrough records nests at the same place.

142. **Progne subis.** PURPLE MARTIN.—Horsbrough records occasional birds between Mirror and Buffalo Lake and nests in rotten stumps near Sylvan Lake but says they are not common. Specimen in Fleming collection.

143.* **Petrochelidon lunifrons.** CLIFF SWALLOW.—Very abundant along the whole river, nesting in large colonies under the overhangs of cliff ledges. In places the cliff face is covered solidly over many square yards with nests. Not all of these colonies are occupied, and I presume that they are used but a single season and that the colony seeks new location yearly until the old nests gradually weather away and make room for new ones. It was interesting to note that though many colonies seemed to be built in exposed situations, when rain came, all we observed remained dry while the surrounding cliff face was soaked with wet that would have instantly dissolved the frail clay structures. There is obviously more method in their choice of site than is evident on a casual survey. As it was, we noted many colonies that seemed to have been in situ for

several years, illustrating the discrimination of their judgment. In one such colony I found old swallow nests doing new service for House Wrens that had filled them with sticks and were rearing families within them. Rather unexpectedly we found many occupied nests in the immediate vicinity of Duck Hawk and Prairie Falcon eyries. See *antea* plate opp. p. 11. We often found them plastered right up to and on the very ledges so occupied and the swallows coming and going without the slightest hesitation in the presence of the Falcons. So often did we observe this, that it suggested that such vicinities were matters of choice rather than the accident of indifference. Specimens from Camp 2 and 11, none seen after August 11.

144. ***Hirundo erythrogastra***. BARN SWALLOW.—Not noted on the upper parts of the river but a few were seen at Camp 6, Tolman's Ferry. At Camp 11, Little Sandhill Creek, Young observed a few each day until September 25. Reported from Red Deer by both Horsbrough and Farley but apparently not common.

145. ***Iridoprocne bicolor***. TREE SWALLOW.—But two individuals noted at Camp 1, July 1 and 2. Farley seems to regard it as common and Horsbrough records nests at Buffalo and Haunted Lakes.

148. ***Riparia riparia***. BANK SWALLOW.—Seen constantly all the way down the river and at Camp 11, Little Sandhill Creek, until the end of July after which none were noted. They nest in the many banks lining the river. As these are constantly caving in and sliding into the river, great numbers of birds and nests must be annually destroyed. They show less foresight in the choice of nesting sites than do the Cliff Swallows. Horsbrough records only a single nest and Farley refers to but a few. It probably keeps close to the river banks where it is not seen by the general observer.

147. ***Bombycilla garrula***. BOHEMIAN WAXWING.—Horsbrough records this species as — "During the summer this species was common throughout the Alix district." He records nests on the authority of Dr. George of Red Deer and Mr. Cook of Buffalo Lake. These observers seem perfectly familiar with the Cedar bird so this rather unexpected record can not be altogether disregarded on the grounds of confusion between similar appearing species.

148.* ***Bombycilla cedrorum***. CEDAR WAXWING.—Fairly common throughout the river. Specimens, Camp 11, July 20 and August 14.

149. ***Lanius borealis***. NORTHERN SHRIKE.—Farley notes the Northern Shrike at Camrose in November and December.

150.* ***Lanius ludovicianus***. LOGGERHEAD SHRIKE.—Only seen at Camp 11 where one or perhaps two families were reared and I took a female with accompanying young and later Young took a single adult female. Specimens, July 21 and 28. Only one of these is subspecifically determinable, it has the extensive white rump typical of *L. l. excubitorides*. Farley gives spring dates for the species at both Red Deer and Camrose.

151.* ***Vireosylva olivacea***. RED-EYED VIREO.—Seen fairly con-

stantly all the way down the river but less common below than above where the banks are more wooded. At Camp 11, Young did not meet it until August 20 nor after September 1; and never in any numbers. Specimens from Camps 1, 8 and 11.

152.* *Vireosylva philadelphia*. PHILADELPHIA VIREO.—Taken at Camps 1 and 3 but not recognized again. At Camp 11, Young saw a few small vireos but no Philadelphias were recognized. At Camp 1, a male and female were taken June 30 and July 3. The abdomens of both showed indications of incubations and doubtless it was an original pair of breeding birds. Horsbrough records a nest at Sylvan Lake he supposes to be of this species.

153.* *Vireosylva gilva*. WARBLING VIREO.—Small Vireos were not common anywhere on the river. The only ones positively identified by capture proved to be Philadelphias until August 16 when Young took a Warbling at Camp 11 on the Little Sandhill Creek. Occasional specimens were seen that he took to be the same species until September 5. I refer this specimen to *V. g. gilva*.

154.* *Lanivireo solitarius*. SOLITARY VIREO.—One seen and collected at Camp 11, Little Sandhill Creek, and six were noted the same place, September 1.

155.* *Mniotilta varia*. BLACK AND WHITE WARBLER.—Only seen at Camp 11, Little Sandhill Creek, between August 13 and September 1. Two specimens taken.

156.* *Vermivora celata*. ORANGE-CROWNED WARBLER.—One adult male taken at Camp 2. Its song was slightly reminiscent of a wren and I suspect it was nesting nearby. Occasional birds were seen and taken at Camp 11, Little Sandhill Creek, between August 25 and September 17. This specimen is colored light enough for *V. c. orestera*, its size is small for any race but *V. c. lutescens*, under which conflation of characters I prefer to leave its subspecific identity open, together with the four Camp 11 juveniles that accompany it.

157.* *Vermivora peregrina*. TENNESSEE WARBLER.—Seen at Camp 1, where I suspected it was nesting but received no corroborative evidence other than season and its uneasy actions. Seen for a few days after the middle of August at Camp 11 on the Little Sandhill Creek. Specimens from Camp 1 and 11, August 13, 15 and 21. From Farley's notes this appears to be quite a common species at both Red Deer and Camrose,—at least in spring.

158.* *Dendroica aestiva*. YELLOW WARBLER.—Not abundant but a few seen at nearly every camp. Not common at Camp 11, Little Sandhill Creek, except from August 9 to September 8 after which they decreased, disappearing altogether September 17. Specimens, Camp 2, 5, 7½, 8 and 11.

159.* *Dendroica coronata*. MYRTLE WARBLER.—One seen at Camp 2 was the only one observed until August 23 after which they gradually increased in numbers during Young's stay. Specimens from Camp

11, August 23 and September 8 and 18. The first one is in striped juvenile plumage and was probably raised nearby.

160.* ***Dendroica magnolia***. MAGNOLIA WARBLER.—Two seen and taken, September 1, at Camp 11, Little Sandhill Creek.

161.* ***Dendroica striata***. BLACK-POLLED WARBLER.—Only seen at Camp 11, Little Sandhill Creek, August 28 and September 1. Two specimens, the latter date.

162.* ***Dendroica virens***. BLACK-THROATED GREEN WARBLER.—But one seen and collected at Camp 11, Little Sandhill Creek, August 17.

163. ***Dendroica palmarum***. PALM WARBLER.—Two birds seen by Young at Camp 11, Little Sandhill Creek, September 1.

164.* ***Seiurus aurocapillus***. OVENBIRD.—Heard nearly every day about Camp 1, but none noted again until Young secured two at Camp 11, Little Sandhill Creek, August 27 and September 1.

165.* ***Seiurus noveboracensis***. NORTHERN WATER-THRUSH.—One or two seen nearly every day the last week in August at Camp 11, Little Sandhill Creek, specimens, August 20 and 21. These are referable to *S. n. notabilis*.

166.* ***Oporornis philadelphia***. MOURNING WARBLER.—At Camp 1, where warblers were scarce, this was the species most often met with. A mated pair were taken just below Camp 4 near Nevis. In all these birds the abdomen was bare and thickened so they were undoubtedly breeding. Young took another at Camp 11, Little Sandhill Creek, August 17. The male of the Camp 4 pair, is typical *philadelphia* but the female has the eyelid spots as pronounced as in many female Macgillivray's Warblers. It is evident that females of the two species may be difficult of separation. This specimen unaccompanied by its mate would almost unhesitatingly be referred to *O. tolmiei*. The Camp 11 specimen is also interesting. By skull structure it is a juvenile but is very different in coloration from any other specimen in our collection. It is Empire Yellow below warming to Primuline Yellow,¹ instead of Lemon Chrome changing to Sulphur Yellow on neck and throat as is shown by comparable August and September material from Point Pelee, Ontario. However, fall specimens of this species are scarce in collections and I have no fall juveniles of *tolmiei* for comparison and include it under *philadelphia* on the strength of accompanying specimens.

167.* ***Geothlypis trichas***. MARYLAND YELLOW-THROAT.—Sparingly distributed but seen practically throughout the trip and becoming a little more common as we descended. The last week in August they were fairly common at Camp 11 on the Little Sandhill Creek but thinned out after the first of September. Specimens from Camps 4½, 8 and 11. In harmony with the findings of the A. O. U. C. committee as indicated in the 'Check-list,' I am inclined to refer our Canadian prairie Yellow-throats to *occidentalis* rather than to *trichas*, of *brachidactyla*, as some of them have been designated by Oberholser. In fact I find them easily distinguishable from

¹ Ridgway's Color Standards and Nomenclature, 1912.

birds of eastern Canada and almost if not quite inseparable from *B. C.* specimens determined as *arizela* by the same authority. For the present, I prefer to regard these birds as *G. t. occidentalis*.

168.* **Wilsonia pusilla.** WILSON WARBLER.—Not seen until August 21 at Camp 11 on the Little Sandhill Creek after which one or two were seen every other day until September 18. Specimens, August 21 to September 18. These were well marked *W. p. pileolata*. Some are rather small for this form but the colors are distinctive.

169. **Wilsonia canadensis.** CANADIAN WARBLER.—Reported by Young at Camp 1, but not noted again.

170.* **Setophaga ruticilla.** REDSTART.—Only seen at Camp 11 on the Little Sandhill Creek between August 26 and September 6. Specimen, Camp 11, August 27.

171.* **Anthus rubescens.** AMERICAN PIPIT.—Pipits appeared in large flocks on the prairie level near Camp 11, Little Sandhill Creek, September 12, but were not noted after the 17th.

172.* **Anthus spraguei.** SPRAGUE'S PIPIT.—Only seen once by Young at Camp 11, Little Sandhill Creek, September 13. He says it hid in the holes made by the feet of horses and cattle, allowed close approach, flushing like a grouse. Specimen Camp 11, September 13. From Farley's notes it evidently occurs at Red Deer but is more common in the vicinity of Camrose.

173.* **Dumetella carolinensis.** CATBIRD.—Fairly common along the whole river. At Camp 11, Little Sandhill Creek, they fed upon Buffalo berries. None were noted after September 7. Specimens, Camp 2 and 11.

174.* **Toxostoma rufum.** BROWN THRASHER.—Only seen occasionally at Camp 11 on the Little Sandhill Creek. None observed after September 1. Specimen, Camp 11, August 6.

175.* **Salpinctes obsoletus.** ROCK WREN.—Not seen until we reached Camp 11, on the Little Sandhill Creek. There they appeared fairly common, the greatest numbers being observed about the first of August, when fifteen were noted. The last was observed September 5. Specimens July 20 to 31.

176.* **Troglodytes aëdon.** HOUSE WREN.—Fairly common everywhere but very shy. I do not think the song of the western birds is such a spontaneous bubbling over as is the case of our eastern ones. It is thinner and more restrained. At Camp 2 we found it occupying old Cliff Swallow nests. Common at Camp 11, Little Sandhill Creek until after the first of September when it gradually became less numerous. Specimens 6, from Camps 1, 8, 11 all *T. a. parkmani*.

177. **Telmatodytes palustris.** LONG-BILLED MARSH WREN.—Farley lists it in May and June at Red Deer and Horsbrough reports numerous nests around Buffalo Lake.

178. **Sitta canadensis.** RED-BREASTED NUTHATCH.—About Camp 1, we several times heard Nuthatch voices but were unable to trace them to their origin and we cannot be certain of the species. Young took one at Camp 11 on the Little Sandhill Creek, August 21, feeding on woolly

aphides on the cottonwoods. Neither Farley or Horsbrough report this species in the breeding season though Fleming has Red Deer specimens taken June 10.

179.* ***Penthestes atricapillus***. BLACK-CAPPED CHICKADEE.—Chickadees were fairly common all along the river. In most cases they seemed to be cruising about in family groups not yet separated. Five specimens all juvenile, from Camps 1, 3, 8 and all have the extreme white feather margins and long tails of *P. a. septentrionalis*.

180. ***Penthestes hudsonicus***. HUDSONIAN CHICKADEE.—Under *P. hudsonicus*, Horsbrough lists this species as a common resident and reports a nest. I have no further records for the vicinity.

181.* ***Regulus calendula***. RUBY-CROWNED KINGLET.—Occasional birds seen at Camp 11 on the Little Sandhill Creek from the end of August to the end of Young's stay becoming more common latterly. Specimen, Camp 11, August 29.

182.* ***Hylocichla fuscescens***. WILSON'S THRUSH.—Fairly common as far down the river as Camp 9 below Rosedale Mines. Most of the records are based upon their notes as all thrushes were exceedingly shy. Two specimens, Camp 7½. These are rather more richly colored than other birds from about Edmonton, less olive and more nearly like eastern specimens. I am doubtful as to the exact subspecific status of these specimens but refer them to *H. s. salicicola* with reservations.

183.* ***Hylocichla ustulata***. OLIVE-BACKED THRUSH.—Thrushes though common enough were very difficult to identify as they were very shy and only fleeting glimpses were caught of them as they slunk away through the brush. One Olive-back was taken at Camp 11, Little Sandhill Creek, September 17. Horsbrough reports nests at Sylvan Lake.

184.* ***Hylocichla guttata***. HERMIT THRUSH.—For the above reasons I only care to specifically pronounce upon the one bird taken at Camp 11, Little Sandhill Creek, September 22.

185.* ***Planesticus migratorius***. AMERICAN ROBIN.—Common all along the river. At Camp 11, Little Sandhill Creek, Young says they fed extensively upon Buffalo berries. Specimens, Camp 11, September 7 to 21. Horsbrough refers his birds to the western form *P. m. propinquus*, a rather questionable decision.

186.* ***Sialia currucoides***. MOUNTAIN BLUEBIRD.—Some Bluebirds glimpsed in the outskirts of the city of Red Deer and whilst driving from the river to Nevis, Camp 4, we attributed to this species. Several times below Camp 4 we noted individuals amongst the eroded cliffs and hills but could not get close enough to identify them satisfactorily. It was not until we reached Camp 11, on the Little Sandhill Creek that the species was certainly recognized. Here we found them common, feeding upon Saskatoon berries, and later according to Young on Buffalo berries. They remained common up to the time he left and he noted a flock of one hundred birds, September 8. Seven specimens Little Sandhill Creek, July 20 to September 8. Both Farley and Horsbrough report it common at Red Deer.

ADDENDA.

We have received in addition to the specimens already cited the following, collected by Dr. R. M. Anderson, Western Grebe, *Aechmophorus occidentalis*, Dried Meat Lake, near Camrose, September 20, 1918. Horned Grebe, *Colymbus auritus*; Greater and Lesser Yellow-legs, *Totanus melanoleucus* and *T. flavipes*; Ruffed Grouse, *Bonasa umbellus* from Miquelon Lake, near Camrose, September 29, 1918.

The following species and notes should be added to the previous list:

187.* **Larus philadelphia.** BONAPARTE'S GULL.—Farley reports this species May 1, 1900 at Red Deer and May 13 and 16, 1917 at Camrose. Anderson took a specimen, September 29, 1918 at Miquelon Lake.

(12). **Phalacrocorax auritus.** DOUBLE-CRESTED CORMORANT.—Farley reports that for many years this species bred on Miquelon Lake some 24 miles southeast of Edmonton where Anderson found evidence in September, 1918 of the current year's nesting in the form of nests said to be Cormorant's.

(13). **Pelecanus erythrorhynchos.** WHITE PELICAN.—Said by Farley to have nested in numbers at Miquelon Lake until of late years and it is not known as yet where they have removed to. At the height of their nesting from 300 to 500 nests were to be seen on an island of not three acres extent.

(25). **Clangula clangula.** GOLDENEYE.—Farley reports that for the past eight years Goldeneyes have nested in a blind brick chimney on the R. B. Price house in Camrose, about five feet down. The young clamber up the flue to the top, tumble off and roll down the roof to the ground where they are gathered up and conveyed to the water by human friends, where the mother invariably awaits to receive them. Every spring ducks visit many chimneys in town as if prospecting for nesting sites. My informant queries, "Would these be the young that have remembered a similar nesting home?" The facts suggest the affirmative.

(29). **Chen hyperboreus.** SNOW GOOSE.—Fleming informs me that he has examined the head of one of Horsbrough specimens, probably one of those he cites, and declares it to be the Lesser, *C. h. hyperboreus*.

(35). **Ardea herodias.** GREAT BLUE HERON.—Anderson on an island in Miquelon Lake, September, 1918 found nests of this species together with those of Cormorants on the ground. The specific identity was supplied by Mr. Farley and other good report.

(36). **Grus mexicana.** SANDHILL CRANE.—Farley reports finding a crane nest on Spotted Lake near Buffalo Lake in May 1895. Dr. George of Red Deer also informs me that he took crane eggs on a small pond near Innisfail May 24, 1896. Undoubtedly these were *G. mexicana*.

188. **Grus americana.** WHOOPING CRANE.—Dr. George of Red Deer informs me that he has not seen Whooping Cranes near Red Deer for some years, inferring their former presence but stating that he never found them breeding.

189. **Coturnicops noveboracensis.** YELLOW RAIL.—Mr. Farley says,—“I know of a swamp at Red Deer where a pair nested several years. Their note is just like two stones knocked together quickly. There is also a pair in a swamp just off our farm (Camrose) where I can depend upon hearing them every June.”

(42). **Macrorhamphus griseus.** DOWITCHER.—In the previously published part of the list, *antea*, p. 12, under this species heading I made an unfortunate slip of the pen when I said that Horsbrough ascribes this “probably incorrectly to the western race, *M. g. scolopaceus*.” It should have read “the eastern race, *M. g. griseus*, which makes my implied criticism more intelligible. Fleming sends me measurements of a Buffalo Lake bird, August 1915, which he refers to *griseus* though he says the color characters tend towards *scolopaceus*. I infer from his remarks that this is an adult and not a juvenile bird.

190.* **Pisobia bairdi.** BAIRD'S SANDPIPER.—We have a specimen taken by Anderson, Many Island Lake, September 18, 1918.

191. **Pelidna alpina.** RED-BACKED SANDPIPER.—Mr. Farley reports “Black-heart Plover” May 11, 1899 at Red Deer. This is an old South Ontario name for this species.

(47). **Bartramia longicauda.** UPLAND PLOVER.—Farley notes that this species is rapidly disappearing from this section, a condition he called attention to in the *Ottawa Naturalist* XXVII, 1913, p. 63. He now lays the blame upon the boys who find it a too easy object of sport through the summer.

(50). **Numenius longicauda.** LONG-BILLED CURLEW.—Farley substantiates the hypothetical identity of this species reported by Horsbrough and Sternberg, recording it from both Red Deer and Camrose.

(51). **Squatarola squatarola.** BLACK-BELLIED PLOVER.—**Charadrius dominicus.** GOLDEN PLOVER.—J. H. Fleming writes me that he has the specimens that Horsbrough records as Golden Plover and that they prove to be Black-bellies. Thus the Golden should be replaced by the Black-bellied in the authenticated list.

192. **Buteo platypterus.** BROAD-WINGED HAWK.—Fleming informs me he has a specimen, Little Hay Lake, (near Camrose) September 2, 1918.

Falco rusticolus. GYRFALCON.—J. H. Fleming tells me he has the specimen reported under this head by Horsbrough which he regards as *rusticolus*.

193. **Aquila chrysaëtos.** GOLDEN EAGLE.—Farley reports,—“seen nearly every November at Red Deer.

(78). **Bubo virginianus.** GREAT HORNED OWL.—Sonema, 5th line second paragraph should be “Louisiana.”

194. **Nyctea nyctea.** SNOWY OWL.—Farley remarks in letter of November 18, 1918, from Camrose,—“A friend saw a Snowy Owl yesterday,” thus giving evidence for the inclusion of this species of undoubted occurrence.

FOURTH ANNUAL LIST OF PROPOSED CHANGES IN
THE A. O. U. CHECK LIST OF NORTH AMERICAN
BIRDS.

BY HARRY C. OBERHOLSER.

THIS is the Fourth Annual List of proposed A. O. U. Check-List additions and changes in the names of North American birds. Like the First, Second, and Third,¹ the present list comprises only ornithological cases — *i. e.*, such as require specimens or the identification of descriptions for their determination — and consists of additions, eliminations, rejections, and changes of names due to various causes. However, only changes known to be the result of revisionary work are included; therefore no mention is here made of changes involved in names in local lists or elsewhere, used without sufficient explanation or not known to be based on original research, of changes or additions queried or but tentatively made, or of the elimination of subspecies by authors who, on general principles, recognize no subspecies.

This list is intended to include everything pertinent up to December 31, 1918, and nothing after that date has been taken. In view of the volume and widely scattered character of current ornithological literature, it is not at all unlikely that some names or changes have been overlooked, and the writer would be very thankful for reference to any omissions, in order that such may be duly given a place in next year's list.

ADDITIONS² AND CHANGES IN NAMES.

Gavia arctica (Linnaeus) becomes, so far as North American specimens are concerned, **Gavia viridigularis** Dwight, 'The Auk,' XXXV, No. 2, April, 1918, p. 198 (Gichega, northeastern Siberia). (Cf. Dwight, 'The Auk,' XXXV, No. 2, April, 1918, pp. 196-199.)

Gavia pacifica (Lawrence) becomes **Gavia arctica pacifica** (Lawrence). (Cf. Dwight, 'The Auk,' XXXV, No. 2, April, 1918, pp. 198-199.)

¹ For the three previous lists see, 'The Auk,' XXXIII, October, 1916, pp. 425-431; XXXIV, April, 1917, pp. 198-205; XXXV, April, 1918, pp. 200-217.

² Additions to the A. O. U. Check-List, the Sixteenth Supplement, and the First, Second, and Third Annual Lists, are marked with a dagger (†).

†**Larus hyperboreus barrovianus** Ridgway. *Larus barrovianus* Ridgway, 'The Auk,' III, No. 3, July, 1886, p. 330 (Point Barrow, Alaska). Reinstated as a subspecies. (Cf. Oberholser, 'The Auk,' XXXV, No. 4, Oct., 1918, p. 472.) Range: northwestern North America, south in winter to California.

Thalassogeron Ridgway becomes **Thalassarche** Reichenbach (Naturf. Syst. Vögel, 1852, p. V), because not considered generically separable. (Cf. Loomis, Proc. Calif. Acad. Sci., ser. 4, II, pt. II, No. 12, April 22, 1918, p. 44.)

Thalassogeron chrysostomus culminatus (Gould) becomes **Thalassarche culminata culminata** (Gould), because *Diomedea chrysostoma* Forster is considered not with certainty identifiable. (Cf. Loomis, Proc. Calif. Acad. Sci., ser. 4, II, pt. II, No. 12, April 22, 1918, p. 85.)

Fulmarus rodgersi Cassin becomes **Fulmarus glacialis rodgersii** Cassin, because not specifically distinct from *Fulmarus glacialis*. (Cf. Loomis, Proc. Calif. Acad. Sci., ser. 4, II, pt. II, No. 12, April 22, 1918, pp. 88-90.)

Thyellodroma cuneata (Salvin) becomes **Thyellodroma chlororhyncha** (Lesson) (*Puffinus chlororhynchus* Lesson, Traité d'Ornith., 1831, p. 613, no locality), because it is only a light color phase of the latter. (Cf. Loomis, Proc. Calif. Acad. Sci., ser. 4, II, pt. II, No. 12, April 22, 1918, pp. 141-145.)

†**Prifofinus** Hombron and Jacquinot. Recognized as a genus. (Cf. Loomis, Proc. Calif. Acad. Sci., ser. 4, II, pt. II, No. 12, April 22, 1918, pp. 59, 108.) The only species therefore should be called

Prifofinus cinereus (Gmelin).

†**Pterodroma gularis** (Peale). *Procellaria gularis* Peale, U. S. Explor. Exped., VIII, 1848, p. 299 (Atlantic Ocean, lat. 68° S., long. 95° W.). Recorded from Alaska. (Cf. Bent, 'The Auk,' XXXV, No. 2, April, 1918, p. 221.)

Æstrelata gularis Peale becomes **Pterodroma inexpectata** (Forster) (*Procellaria inexpectata* Forster, Descript. Anim., 1844, p. 204, Antarctic Ocean), because the latter is identical and of earlier date. (Cf. Loomis, Proc. Calif. Acad. Sci., ser. 4, II, pt. II, No. 12, April 22, 1918, pp. 104-105.)

Pelecanus californicus Ridgway becomes **Pelecanus occidentalis californicus** Ridgway. (Cf. Oberholser, 'The Auk,' XXXV, No. 1, Jan., 1918, p. 62.)

Aristonetta Baird, Rep. Expl. & Surv. R. R. Pac., IX, 1858, p. 793 (type, *Anas valisineria* Wilson). Raised to generic rank. (Cf. Oberholser, Proc. Biol. Soc. Wash., XXXI, June 29, 1918, p. 98.) The only species therefore becomes

Aristonetta valisineria (Wilson).

† See previous footnote on page 266.

Creciscus coturniculus (Ridgway) becomes **Creciscus jamaicensis coturniculus** (Ridgway). (Cf. Oberholser, 'The Auk,' XXXV, No. 1, Jan., 1918, p. 63.)

†**Numenius americanus occidentalis** Woodhouse. *Numineus occidentalis* Woodhouse, Proc. Acad. Nat. Sci. Phila., 1852, p. 194 (near Albuquerque, New Mexico). Revived as a subspecies. (Cf. Oberholser, 'The Auk,' XXXV, No. 2, April, 1918, p. 191.) Range: southwestern Canada and the northwestern United States, south in winter to Mexico and Jamaica.

Ectopistes migratorius (Linnaeus) becomes **Ectopistes canadensis** (Linnaeus) (*Columba canadensis* Linnaeus, Syst. Nat., ed. 12, I, 1766, p. 284, Canada), because the latter has been identified as the same species, and has anteriority. (Cf. Oberholser, Science, N. S., XLVIII, No. 1244, Nov. 1, 1918, p. 445.)

Polyborus cheriway (Jacquin) becomes **Polyborus cheriway auduboni** Cassin (*Polyborus auduboni* Cassin, Proc. Acad. Nat. Sci. Phila., 1865, p. 2; Florida), because the North American bird is subspecifically distinct. (Cf. Bangs and Noble, 'The Auk,' XXXV, No. 4, Oct., 1918, p. 443.)

Streptoceryle Bonaparte becomes **Megaceryle** Kaup, because not regarded as generically distinct. (*Megaceryle* Kaup, Verh. Naturhist. Vereins Hessen, II, 1848, p. 68; type, *Alcedo guttatus* Vigors = *Alcedo lugubris* Temminck). (Cf. Miller, 'The Auk,' XXXV, No. 3, July, 1918, p. 352.)

†**Cyanolæmus clemencise bessophilus** Oberholser. New subspecies. Oberholser, Condor, XX, No. 5, Sept. 27, 1918, p. 181 (Fly Park, Chiricahua Mts., Arizona). Range: southwestern border of United States to northern Mexico; in winter to southeastern Mexico.

Empidonax traillii traillii (Audubon) becomes **Empidonax traillii brewsteri** Oberholser, Ohio Journ. Sci., XVIII, No. 3, January, 1918, (published, Feb. 8, 1918), p. 93 (Cloverdale, Nye Co., Nevada). (Cf. Oberholser, Ohio Journ. Sci., XVIII, No. 3, Jan., 1918, pp. 93-98.)

Empidonax traillii alnorum Brewster becomes **Empidonax traillii traillii** (Audubon). (Cf. Oberholser, Ohio Journ. Sci., XVIII, No. 3, January, 1918 [published, Feb. 8, 1918], pp. 85-92.)

†**Otocoris alpestris enartera** Oberholser, Proc. Biol. Soc. Wash., XX, March 27, 1907, p. 41 (Llano de Yrais, Lower California, Mexico). Revived as a subspecies. (Cf. Oberholser, Bird-Lore, XX, No. 5, pp. 346-347.) Range: central and southern Lower California.

†**Otocoris alpestris ammophila** Oberholser, Proc. U. S. Nat. Mus., XXIV, June 9, 1902, pp. 806, 849 (Coso Valley, southeastern California). Revived as a subspecies. (Cf. Oberholser, Bird-Lore, XX, No. 5, Oct. 1, 1918, pp. 346-347.) Range: Mojave Desert to Owens Valley, southern California.

†**Otocoris alpestris leucansiptila** Oberholser, Proc. U. S. Nat. Mus., XXIV, June 9, 1902, pp. 806, 864 (Yuma, Arizona). Revived as a

- subspecies. (Cf. Oberholser, Bird-Lore, XX, No. 5, Oct. 1, 1918, pp. 346-347.) Range: western edge of Arizona, southeastern border of California, southern Nevada, and northeastern Lower California.
- †**Otocoris alpestris aphrasta** Oberholser, Proc. U. S. Nat. Mus., XXIV, June 9, 1902, pp. 806, 860 (Casas Grandes, Chihuahua, Mexico). Revived as a subspecies. (Cf. Oberholser, Bird-Lore, XX, No. 5, Oct. 1, 1918, pp. 346-347.) Range: central northern Mexico, north to southeastern Arizona and southwestern New Mexico.
- †**Otocoris alpestris enthymia** Oberholser, Proc. U. S. Nat. Mus., XXIV, June 9, 1902, pp. 807, 817 (St. Louis, Saskatchewan, Canada). Revived as a subspecies. (Cf. Oberholser, Bird-Lore, XX, No. 5, Oct. 1, 1918, pp. 345-346.) Range: Great Plains region from northwestern Texas to Saskatchewan.
- †**Aphelocoma californica oöcleptica** Swarth. New subspecies. Swarth, Univ. Calif. Publ. Zool., XVII, No. 13, Feb. 23, 1918, p. 413 (Nicasio, Calif.). Range: coast region of northern California.
- †**Sieberocitta** Coues, Key to North Amer. Birds, 5th ed., I, 1903, pp. 497, 499 (type, *Cyanocitta ultramarina* var. *arizonæ* Ridgway). Recognized as a subgenus. (Cf. Swarth, Univ. Calif. Pub. Zool., XVII, No. 13, Feb. 23, 1918, pp. 406-407.) Includes the following North American forms:
- Aphelocoma sieberi arizonæ** (Ridgway).
- Aphelocoma sieberi couchii** (Baird).
- †**Corvus corax europhilus** Oberholser. New subspecies. Oberholser, Ohio Journ. Sci., XVIII, No. 6, April, 1918 (published, May 6, 1918), p. 215 (Ardell, Alabama). Range: eastern United States and southeastern Canada.
- †**Agelaius phœniceus arctolegus** Oberholser, 'The Auk,' XXIV, No. 3, July, 1907, p. 332 (Fort Simpson, Mackenzie, Canada). Reinstated as a subspecies. (Cf. Oberholser, 'The Auk,' XXXV, No. 1, Jan., 1918, p. 64.) Range: middle Canada and central northern United States, wintering in the southeastern United States.
- †**Icterus icterus** (Linnæus). *Oriolus icterus* Linnæus, Syst. Nat., ed. 12, I, 1766, p. 161 (warmer parts of America). Recorded from a specimen taken at Santa Barbara, Calif. (Cf. Bowles, 'The Auk,' XXVIII, No. 3, July, 1911, pp. 368-369.)
- Quiscalus quiscula quiscula** (Linnæus) becomes **Quiscalus quiscula versicolor** Vieillot (*Quiscalus versicolor* Vieillot, Nouv. Diet. d'Hist. Nat., XXVIII, 1819, p. 488, North America), because *Quiscalus quiscula quiscula* is applicable only to *Quiscalus quiscula aglæus* Baird. (Cf. Wayne, 'The Auk,' XXXV, No. 4, Oct., 1918, p. 440.)
- Quiscalus quiscula aglæus** Baird becomes **Quiscalus quiscula quiscula** (Linnæus) because the latter is based on the same bird. (Cf. Wayne, 'The Auk,' XXXV, No. 4, Oct., 1918, p. 440.)
- †**Passerculus sandwichensis bradburyi** Figgins. New subspecies.

Figgins, Proc. Colorado Mus. Nat. Hist., April, 1918, p. 2 (James Island, South Carolina).

†**Nemospiza henslowii susurrans** (Brewster). New subspecies. *Passerherbulus henslowii susurrans* Brewster, Proc. New Engl. Zool. Club, VI, Feb. 6, 1918, p. 78 (Falls Church, Va.). Range: United States east of the Allegheny Mountains.

Junco oreganus shufeldti Coale becomes **Junco oreganus couesi** Dwight (*Junco oreganus couesi* Dwight, Bull. Amer. Mus. Nat. Hist., XXXVIII, June 1, 1918, p. 291; Okanagan, British Columbia), because *Junco oreganus shufeldti* Coale is regarded as a synonym of *Junco oreganus oreganus* (Townsend). (Cf. Dwight, Bull. Amer. Mus. Nat. Hist., XXXVIII, June 1, 1918, pp. 289-295.)

Junco oreganus mearnsi Ridgway becomes **Junco mearnsi mearnsi** Ridgway, because a distinct species. (Cf. Dwight, Bull. Amer. Mus. Nat. Hist., XXXVIII, June 1, 1918, pp. 296-298.)

Junco oreganus townsendi Anthony becomes **Junco mearnsi townsendi** Anthony, because regarded a subspecies of *Junco mearnsi* instead of *Junco oreganus*. (Cf. Dwight, Bull. Amer. Mus. Nat. Hist., XXXVIII, June 1, 1918, pp. 296-297.)

Junco insularis Ridgway becomes **Junco mearnsi insularis** Ridgway, because regarded as a subspecies. (Cf. Dwight, Bull. Amer. Mus. Nat. Hist., XXXVIII, June 1, 1918, pp. 296-297.)

†**Passerella iliaca canescens** Swarth. New subspecies. Swarth, Proc. Biol. Soc. Wash., XXXI, Dec. 30, 1918, p. 163 (Wyman Creek, White Mts., Inyo Co., Calif.). Range: White Mountains, California, south in winter to southern California.

†**Passerella iliaca fulva** Swarth. New subspecies. Swarth, Proc. Biol. Soc. Wash., XXXI, Dec. 30, 1918, p. 162 (Warner Mts., Calif.). Range: Warner Mountains, California.

†**Passerella iliaca mariposæ** Swarth. New subspecies. Swarth, Proc. Biol. Soc. Wash., XXXI, Dec. 30, 1918, p. 161 (near Chinquapin, Yosemite Park, Calif.). Range: central and northern Sierra Nevada, California; south in winter to southwestern California.

†**Passerella iliaca brevicauda** Mailliard. New subspecies. Mailliard, Condor, XX, No. 4, July 22, 1918, p. 139 (one-half mile south of South Yolla Bolly Mountain, Trinity Co., Calif.). Range: Yolla Bolly Mountains, California; south in winter to southern California.

†**Lanius ludovicianus nelsoni** Oberholser. New subspecies. Oberholser, Condor, XX, No. 6, December 12, 1918, p. 209 (Todos Santos, Lower Calif., Mexico). Range: southern two-thirds of Lower California, including adjacent islands.

†**Dendroica æstiva amnicola** Batchelder. New subspecies. Batchelder, Proc. New Engl. Zool. Club, VI, Feb. 6, 1918, p. 82 (Curslet, Newfoundland). Range: Newfoundland.

†**Dendroica virens waynei** Bangs. New subspecies. Bangs, Proc.

- New Engl. Zoöl. Club, VI, Oct. 31, 1918, p. 94 (near Mount Pleasant, South Carolina). Range: eastern South Carolina.
- †**Seiurus aurocapillus furvior** Batchelder. New subspecies. Batchelder, Proc. New Engl. Zoöl. Club, VI, Feb. 6, 1918, p. 81 (Deer Pond, Newfoundland). Range: Newfoundland.
- †**Toxostoma redivivum helvum** Thayer and Bangs. *Toxostoma rediviva helva* Thayer and Bangs, Proc. New Engl. Zoöl. Club, IV, April 30, 1907, p. 17 (Rosario, Lower Calif.). Revived as a subspecies. (Cf. Oberholser, 'The Auk,' XXXV, No. 1, Jan., 1918, p. 60.) Range: northwestern Lower California.
- †**Sitta carolinensis tenuissima** Grinnell. New subspecies. Grinnell, Condor, XX, No. 2, March 20, 1918, p. 88 (Hanaupah Canyon, Panamint Mts., Inyo Co., Calif.). Range: Panamint Mountains and White Mountains, California.
- †**Penthestes gambeli abbreviatus** Grinnell. New subspecies. Grinnell, Univ. Calif. Publ. Zool., XVII, No. 17, May 4, 1918, p. 510 (Horse Creek, Siskiyou Mts., Calif.). Range: central California to southern Oregon and northwestern Nevada.
- †**Penthestes gambeli inyoensis** Grinnell. New subspecies. Grinnell, Univ. Calif. Publ. Zool., XVII, No. 17, May 4, 1918, p. 509 (three miles east of Jackass Spring, Panamint Mts., Inyo Co., Calif.) Range: mountains of southeastern California, from Mono County to Inyo County.
- †**Hylocichla guttata polionota** Grinnell. New subspecies. Grinnell, Condor, XX, No. 2, March 20, 1918, p. 89 (Wyman Creek, White Mts., Inyo Co., Calif.). Range: White Mountains, California.

REJECTIONS AND ELIMINATIONS.¹

- Gavia arctica** (Linnæus) vs. **Gavia arctica suschkini** Sarudny (cf. Hersey, 'The Auk,' XXXIV, No. 3, July, 1917, pp. 289-290). Change of name rejected. (Cf. Dwight, 'The Auk,' XXXV, No. 2, April, 1918, pp. 196-199.)
- ***Fulmarus glacialis glupischa** Stejneger = **Fulmarus glacialis rogersii** Cassin, because the latter is merely a color phase of the species. (Cf. Loomis, Proc. Calif. Acad. Sci., ser. 4, II, pt. II, No. 12, April 22, 1918, pp. 87-90.)
- ***Æstrelata scalaris** Brewster = **Pterodroma inexpectata** (Forster). (Cf. Loomis, Proc. Calif. Acad. Sci., ser. 4, II, pt. II, No. 12, April 22, 1918, p. 106.)
- ***Æstrelata fisheri** Ridgway = **Pterodroma inexpectata** (Forster).

¹ Eliminations of forms already in the A. O. U. Check-List, the Sixteenth Supplement, the First, Second or Third Annual Lists, are designated by an asterisk (*).

* See above footnote.

- (Cf. Loomis, Proc. Calif. Acad. Sci., ser. 4, II, pt. II, No. 12, April 22, 1918, p. 106.)
- ***Buteo platypterus iowensis** Bailey = *Buteo platypterus platypterus* (Vieillot). (Cf. Oberholser, 'The Auk,' XXXV, No. 4, Oct., 1918, p. 478.)
- Thrasaetos harpyia** (Linnæus). The recent Colorado record (cf. Lowe, 'The Auk,' XXXIV, No. 4, Oct., 1917, p. 454) proves to be a misidentification of *Haliaeetus leucocephalus*. (Cf. Lincoln, 'The Auk,' XXXV, No. 1, Jan., 1918, pp. 78-79.)
- Tyto alba pratincola** (Bonaparte) vs. **Tyto perlata pratincola** (Bonaparte). Proposed change (cf. Ridgway, Bull. U. S. Nat. Mus., No. 50, pt. VI, 1914, pp. 601, 605) rejected. (Cf. Oberholser, 'The Auk,' XXXV, No. 4, Oct., 1918, p. 464.)
- Streptoceryle alcyon caurina** (Grinnell) vs. **Streptoceryle alcyon** (Linnæus). Proposed elimination (cf. Taverner, Summary Rep. Geol. Surv. Dept. Mines Canada for 1916 [1917], p. 361) rejected. (Cf. Oberholser, 'The Auk,' XXXV, No. 4, Oct., 1918, p. 463.)
- Aphelocoma californica woodhouseii** (Baird) vs. **Aphelocoma woodhouseii** (Baird). Proposed change to full species (cf. Swarth, Univ. Calif. Pub. Zool., XVII, No. 13, Feb. 23, 1918, pp. 406-408, 416-418) rejected. Cf. Oberholser, Science, N. S., XLVIII, No. 1233, Aug. 16, 1918, pp. 165-167.)
- Aphelocoma californica hypoleuca** Ridgway vs. **Aphelocoma hypoleuca** Ridgway (cf. Swarth, Univ. Calif. Publ. Zool., XVII, No. 13, Feb. 23, 1918, pp. 420-421). Change rejected. (Cf. Oberholser, 'The Auk,' XXXV, No. 4, Oct., 1918, p. 481.)
- Aphelocoma californica obscura** Anthony vs. **Aphelocoma californica californica** (Vigors). (Cf. Swarth, Univ. Calif. Publ. Zool., XVII, No. 13, Feb. 23, 1918, p. 412.) Proposed elimination rejected. (Cf. Oberholser, 'The Auk,' XXXV, No. 4, Oct., 1918, p. 481.)
- Acanthis hornemanni exilipes** (Coues) vs. **Acanthis linaria exilipes** (Coues). Proposed change (cf. Brooks, 'The Auk,' XXXIV, No. 1, Jan., 1917, p. 44) rejected. (Cf. Oberholser, 'The Auk,' XXXV, No. 4, Oct., 1918, p. 466-467.)
- Spizella monticola** (Gmelin) vs. **Spizella canadensis** (Boddaert). Proposed change of name (cf. Mathews and Iredale, Austral Avian Record, III, No. 2, Nov. 19, 1915, p. 41) rejected because *Spizella canadensis* (Boddaert) (*Fringilla canadensis* Boddaert, Tabl. Planch. Enlum., 783, p. 13) is a synonym of *Zonotrichia leucophrys*. (Cf. Oberholser, Proc. Biol. Soc. Wash., XXXI, June 29, 1918, p. 98.)
- ***Junco oreganus montanus** Ridgway. Regarded as a hybrid between *Junco oreganus* and *Junco mearnsi*. (Cf. Dwight, Bull. Amer. Mus. Nat. Hist., XXXVIII, June 1, 1918, p. 295; 297-298.)
- ***Junco oreganus annectens** Baird. Regarded as a hybrid between *Junco mearnsi* and *Junco caniceps*. (Cf. Dwight, Bull. Amer. Mus. Nat. Hist., XXXVIII, June 1, 1918, p. 298.)

**Junco phænotus dorsalis* Henry. Regarded as a hybrid between *Junco caniceps* and *Junco phænotus*. (Cf. Dwight, Bull. Amer. Mus. Nat. Hist., XXXVIII, June 1, 1918, pp. 299-300.)

Dendroica coronata hooveri McGregor vs. *Dendroica coronata coronata* (Linnaeus). Proposed elimination as a subspecies (cf. Riley, Canadian Alpine Journal, Special Number, 1912 [February 17, 1913] pp. 70-71) rejected. (Cf. Oberholser, 'The Auk,' XXXV, No. 4, Oct., 1918, pp. 465-466.)

Certhia familiaris americana Bonaparte vs. *Certhia brachydactyla americana* Bonaparte. Change of status (cf. Hellmayr, Genera Avium, XV, 1911, p. 8) rejected. (Cf. Oberholser, 'The Auk,' XXXV, No. 4, Oct., 1918, pp. 464-465.)

Penthestes carolinensis (Audubon) vs. *Penthestes atricapillus carolinensis* (Audubon). Proposed change (cf. Hellmayr, Genera Avium, XVIII, 1911, p. 34) rejected. (Cf. Oberholser, 'The Auk,' XXXV, No. 4, Oct., 1918, p. 465.)

NEW FORMS OF SOUTH AMERICAN BIRDS AND PROPOSED NEW SUBGENERA.¹

BY CHARLES B. CORY.

Xenicopsoides subgenus nov.

Characters.—Similar to *Xenicopsis* Cabanis, but with much less graduated and relatively shorter tail (tail less than $\frac{5}{8}$ of wing), relatively shorter tarsus and plain under parts. (Type *Anabazenops variegaticeps* Sclater).

This new subgenus includes the following: *Anabazenops variegaticeps* Sclater; *Anabates temporalis* Sclater; *Philydor montanus* Tschudi; *Anabates striaticollis* Sclater; *Xenicopsis anxius* Bangs and *Philydor venezuelensis* Hellmayr.

Euphilydor subgenus nov.

Characters.—Similar to *Philydor* Spix, but shape of bill different, the terminal half of under mandible (gonys) being decidedly elevated (nearly as in *Xenicopsis*) and the end of the culmen more curved. (Type *Philydor lichtensteini* Cabanis and Heine).

¹ The writer does not sympathize with the increasing tendency to elevate subgenera (which are often based largely on color characters) to genera, unless diagnostic structural characters are also indicated. A well-marked and useful subgenus may represent a questionable genus.

This group comprises the following forms: *Philydor lichtensteini* Cabanis and Heine; *Anabates amaurotis* Temminck and *Anabates dimidiatus* Pelzeln.

***Synallaxis frontalis juæ* subsp. nov.**

Type from Jua, near Iguatu, Ceara, Brazil. Adult male, No. 45618, Field Museum of Natural History. Collected by R. H. Becker, September 2, 1913.

Characters.—Similar to *S. f. frontalis* Pelzeln, but differs chiefly in the brighter and more cinnamon rufous coloration of the crown, wings and tail. The primaries have the outer webs bright cinnamon rufous nearly to the tips, quite different than in *S. f. frontalis*.

Measurements.—Wing, 55; tail, 80 m.

***Synallaxis gujanensis huallagæ* subsp. nov.**

Type from Lagunas, Lower Huallaga River, Peru. Adult male, No. 50561, Field Museum of Natural History. Collected by M. P. Anderson, October 12, 1912.

Characters.—Similar to *S. gujanensis inornata* Pelzeln from the Rio Madeira region, Brazil, but differs in having the upper parts and most of under parts (chest and sides) darker (less buffy brown and more grayish brown), and sides of head and sides of throat brownish gray (not pale buffy as in allied forms); coloration of wings and tail darker and more chestnut brown, wing averaging longer.

Measurements.—Wing, 65; tail, 70; culmen, 14 mm.

***Synallaxis peruviana* sp. nov.**

Type from Moyobamba, northern Peru. Female, No. 50564, Field Museum of Natural History. Collected by W. H. Osgood and M. P. Anderson, July 15, 1912.

Characters.—Back and rump grayish olive brown, the feathers of the nape and upper back with narrow whitish shafts; crown feathers with tawny shaft streaks (giving a streaked appearance to the crown) most pronounced on the forehead; under parts tawny buff shading into olive buff on the belly and flanks; breast feathers with blackish streaks and dots; sides of the head streaked with tawny buff and blackish; remiges with outer webs and greater portion of inner webs rufous; terminal third of the inner webs blackish; tail chestnut rufous; under wing coverts bright ochraceous tawny.

Measurements.—Wing, 64; tail, 55; culmen, 13 mm.

Remarks.—This new form is apparently not very closely allied to any known species. It somewhat resembles *S. stictothorax* from Ecuador and extreme northwestern Peru in size and in having the sides of the neck, and breast, streaked with blackish, but it is otherwise very different.

***Synallaxis semicinerea pallidiceps* subsp. nov.**

Type from Serra Baturite, Ceara, N. E. Brazil. Adult male, No. 45627, Field Museum of Natural History. Collected by R. H. Becker, July 16, 1913.

Characters.—Similar to *S. s. semicinerea* (Reichenbach) from Bahia, but differs in having the general plumage decidedly paler; crown between drab gray and light drab becoming olive drab on the nape; back cinnamon rufous; wings and tail cinnamon rufous, but somewhat more distinctly rufous and slightly less cinnamon than the back; under parts like *S. s. semicinerea*, but more tinged with isabella color; flanks and under tail coverts more tinged with olive buff.

Measurements.—Wing, 67; tail, 77; culmen, 14 mm.

***Synallaxis scutata neglecta* subsp. nov.**

Type from Jua, near Iguatu, Ceara, Brazil. Adult female, No. 50562, Field Museum of Natural History. Collected by R. H. Becker, August 28, 1913.

Characters.—Similar to *S. s. scutata* Selater from Bahia, Goyaz and Matto Grosso (Chapada), but differs in having the rufous coloration very much paler (cinnamon rufous, not chestnut rufous as in *scutata scutata*); crown brownish gray, superciliary stripe behind whitish (not tawny buff); sides of throat, bordering the black patch, buffy white (not rufous buff); under parts much more whitish; wings and tail near cinnamon rufous.

Measurements.—Wing, 54; tail, 68; bill, 13 mm.

***Pseudocolaptes boissoneautii oberholseri* subsp. nov.**

Type from Quito, Ecuador. Adult male, No. 30945, United States National Museum, Washington, D. C. Collected by C. R. Buckalew.

Characters.—Similar to *P. b. boissoneautii* (Lafresnaye) from Bogota, but differs in having the throat and ear tufts quite white and the "scale" marking on the breast larger and more pronounced; belly and flanks more olive rusty; tail darker and more brownish chestnut rufous.

Measurements.—Wing, 107; tail, 99; bill, 20 mm.

Remarks.—An immature specimen from Nanegal, Ecuador, in the collection of the Museum of Comparative Zoölogy has the

whole top of the head blackish and the belly and flanks bright rusty rufous. A specimen labelled Guayaquil (locality probably not correct) in the U. S. National Museum, agrees fairly well with the type, but has the sides of the belly and flanks more olive rufous. I have dedicated this new form to Dr. Harry C. Oberholser.

GENERAL NOTES.

Procellariidæ versus Hydrobatidæ.—The discovery that the generic name *Procellaria* Linnæus belongs to the group commonly called *Majaqueus* Reichenbach (cf. Mathews, Novit. Zool., XVII, December, 1910, p. 497) makes necessary a change in the family name *Procellariidæ*. On account of the adoption of *Thalassidroma* Vigors for *Procellaria* auct. nec Linnæus, the family name *Thalassidromidæ* has been used (Committee of Brit. Ornith. Union, List Brit. Birds, ed. 2, 1915, p. 281). Since, however, the generic name *Thalassidroma* has been properly retired in favor of *Hydrobates* Boie, the family name *Thalassidromidæ* must accordingly be altered to *Hydrobatidæ*, as has already been done by Mr. Mathews in his 'Birds of Australia,' (Vol. 2, No. 1, May 30, 1912, p. 9).—HARRY C. OBERHOLSER, Washington, D. C.

Long-tailed Jaeger in Indiana.—A beautiful specimen of the Long-tailed Jaeger (*Stercorarius longicaudus*), taken at Millers, Ind., November 30, 1918, was seen by me in a Chicago taxidermist's shop. Knowing of only three previous records of the bird's appearance in the Chicago area, I purchased the bird and it is now in my collection. The first record was made by Mr. Stoddard of the Field Museum and the other two by Mr. Woodruff of the Chicago Academy of Sciences (Auk, Vol. 35, p. 234). Mr. Cory of the Field Museum kindly verified its identity and as this forms the fourth instance of the bird's occurrence within our boundaries it should be of interest. It is in the immature plumage with the tail-feathers only partially developed.—NATHAN F. LEOPOLD JR., Chicago, Ill.

***Larus canus brachyrhynchus* in Wyoming.**—A Wyoming specimen of *Larus canus brachyrhynchus*, a male in juvenal plumage, has for many years been in the collection of the Biological Survey, in the United States National Museum. It is No. 141395, U. S. Nat. Mus., and was taken on Lake Fork, a tributary of the Green River, at an altitude of 10,000 feet in the Wind River Mountains, Wyoming, on August 28, 1893, by Mr.

Vernon Bailey. It has already been recorded incidentally (Cooke, Bull. U. S. Dept. Agric., No. 292, October 25, 1915, p. 47), but owing to its importance it seems worthy of special notice in a place more accessible to ornithologists generally. It represents the easternmost record of *Larus canus brachyrhynchus*, and the only really interior occurrence of the species in the United States. For the change of the name of this bird from *Larus brachyrhynchus* to *Larus canus brachyrhynchus* see 'The Auk,' XXXVI, No. 1, January, 1919, p. 83.—HARRY C. OBERHOLSER, Washington, D. C.

Polysticta Eyton versus Stelleria Bonaparte.—Mr. G. M. Mathews has recently (Austral Avian Record, III, No. 5, December 28, 1917, p. 123) advocated the use of the generic name *Stellaria* Bonaparte for the species now known as *Polysticta stelleri* (Pallas). The term *Stellaria* is, of course, as he shows, not debarred from employment in zoölogy by the previous use of *Stellaria* in botany; but he has apparently overlooked the fact that *Polysticta* is not preoccupied, since *Polysticte* Smith (Illust. South Afr. Zool.), June [or later], 1836, does not invalidate *Polysticta* Eyton (Catal. Brit. Birds), April, 1836, a fact to which Dr. C. W. Richmond long ago (Proc. Biol. Soc. Wash. XVI, September 30, 1903, p. 128) called attention. It is evident, therefore, that the name of Steller's Eider should remain *Polysticta stelleri* (Pallas).—HARRY C. OBERHOLSER, Washington, D. C.

Further Record of the European Widgeon at Madison, Wis.—On April 14, 1918, in the wide-water at the head of Lake Waubesa, four miles south of Madison, I was able to identify unmistakably a typical specimen of the European Widgeon (*Mareca penelope*) that was in the company of seventeen Baldpates (*Mareca americana*). The bird was drawn so close by my 40-power telescope that it covered one-third of the field and allowed close study.

It may be of further interest to restate the substance of a note submitted by Mr. A. W. Schorger to the January, 1918 issue of 'The Auk' in regard to the recent appearance of the European Widgeon in the vicinity of Madison. On April 22, 1917, a specimen was discovered by Mr. Schorger on the Hammersley Marsh in company with about thirty Baldpates and a few other ducks. It remained at least four days and was seen by me at close range on three occasions, the last being on the 26th. On the 28th Mr. George H. Jenkins observed a specimen, perhaps the same, among a flock of Baldpates on the Yahara Marshes ten miles distant.—WARNER TAYLOR, Madison, Wisconsin.

A Late Record for *Rallus elegans* for Maine.—November 22, 1909, Mr. A. G. Dorr, Bucksport, Me., collected and sent me in the flesh a fine male specimen of the King Rail. It measured as follows: length, 16.30; wing, 6.75; tail, 2.10; tarsus, 2.34 and bill, 2.40 inches. It was marked above with brownish-black and olive-brown feather edging; light throat and rufous-cinnamon, breast and flanks fuscous, distinctly barred with

white. It was in good physical condition and apparently well able to join the majority of its species in the South had it so chosen.

Mr. Dorr considered this a rare bird for Maine, especially so in the fall. There are a number of fall and winter records for Massachusetts and Maine, but I consider the occurrence sufficiently unusual to be worth recording.—C. L. PHILLIPS, *Taunton, Mass.*

The Proper Generic Name of the Ruff.—The generic name now used for the European Ruff is *Machetes* Cuvier (Regne Animal, I, 1817, p. 490; type by monotypy, *Tringa pugnax* Linnæus). This name has been preferred over *Pavoncella* Leach (Syst. Cat. Indig. Mamm. and Birds Brit. Mus., 1816, p. 29), because the latter was supposed to be a nomen nudum. It was introduced by Leach, however, in combination with the specific term *pugnax*, which is, of course, readily identifiable and of undoubted application to the Ruff. The name is on exactly the same basis as *Spatula* Boie (Isis, X, 1822, col. 564) and several other names proposed by him and by other authors at various times. All these names have hitherto been accepted without question as entirely warranted by both the International and A. O. U. Codes of Nomenclature; and there is no more reason for rejecting *Pavoncella* than any of the other names.

The name *Pavoncella*, however, will not become the generic name of the Ruff, as Dr. C. W. Richmond has already shown (Proc. U. S. Nat. Mus., LIII, August 16, 1917, p. 581), and Mr. G. M. Mathews emphasized (Austral Avian Record, III, No. 5, Dec. 28, 1917, p. 117). There is an earlier name, *Philomachus*, proposed by an anonymous reviewer of Bechstein's Ornithologische Taschenbuch (Allgem. Lit.-Zeitung, 1804, Vol. II, No. 168, June 8, 1804, col. 542), the type of which is, by monotypy, *Tringa pugnax* Linnæus. This name is proposed in a perfectly legitimate way with a diagnosis and citation of species, and is, of course, not to be rejected because anonymous. The name of the Ruff will, therefore, become *Philomachus pugnax* (Linnæus).—HARRY C. OBERHOLSER, *Washington, D. C.*

***Heteractitis* versus *Heteroscelus*.**—The generic name now in use for the Wandering Tattler is *Heteractitis* Stejneger.¹ This term was proposed as a substitute for *Heteroscelus* Baird,² because the latter was considered invalid on account of the prior *Heteroscelis* Latreille, instituted in 1829 for a genus of Coleoptera. According to our present rules of nomenclature, however, *Heteroscelis* does not preoccupy *Heteroscelus*, since the two words differ not merely in grammatical termination, but have different classical endings. Mr. G. M. Mathews a few years ago called attention³ to the desirability of using *Heteroscelus*, but other authors seem generally

¹ 'The Auk,' I, No. 3, July, 1884, p. 236.

² Rep. Expl. and Surv. R. R. Pac., IX, 1858, p. 734 (type by monotypy, *Tolanus brevipes* Vieillot).

³ Birds of Australia, III, part 3, 1913, p. 206.

to have overlooked the matter. In view of the facts in this case it will apparently now be necessary to reinstate Baird's name *Heteroscelus* as the generic designation of the Wandering Tattler. The two species of the genus will therefore stand as follows:

Heteroscelus brevipes (Vieillot).

Heteroscelus incanus (Gmelin).

HARRY C. OBERHOLSER, Washington, D. C.

The Status of *Charadrius rubricollis* Gmelin.—A good service has been performed by Mr. G. M. Mathews in the identification of *Charadrius rubricollis* Gmelin. Unfortunately, however, he neglects to employ this name for the species to which he has shown that it belongs (Birds of Australia, III, pt. 2, May 2, 1913, pp. 130-132). It was originally based by Gmelin (Syst. Nat., I, pt. 2, 1789, p. 687) on the "Red-necked Plover" of Latham, from Adventure Bay, Tasmania. As Mr. Mathews has proved, Latham's description (Syn. Birds, III, pt. 1, p. 212, No. 19) was taken from the Ellis drawings in the British Museum, and is found to fit the species currently called *Charadrius cucullatus* Vieillot, except for the statement that there is "on each side of the neck a large square chestnut spot, the size of a silver penny, almost meeting together at the back part," and "a little mixture of white about the bastard wing," which two characters evidently were taken by mistake from the drawing of *Steganopus tricolor*. This is, therefore, a case of two species confused under the same name; or of a species described with partly erroneous characters; or, in fact, of both, according to the point of view. If we consider only that the characters given have been taken from two species, the name *Charadrius rubricollis* must be used for one of the species involved if the name can be identified, and that it can, Mr. Mathews has shown. Such adoption is sanctioned by both the International and A. O. U. Codes of Nomenclature, and by common usage as well. The name, therefore, should apply to the species to which the greater or most pertinent part of the description refers, which in this case is, of course, *Charadrius cucullatus*. If, however, we take the view that it is erroneously described, neither current usage nor the commonly accepted codes of nomenclature allow its rejection because of indefinite or even erroneous characters, if the description can be positively determined as pertaining to a certain species. Thus, in any case, we should call the species ordinarily known as *Charadrius cucullatus* Vieillot by the name *Charadrius rubricollis* Gmelin. Its two forms will, therefore, stand as *Charadrius rubricollis rubricollis* Gmelin and *Charadrius rubricollis tregellasi* Mathews.—HARRY C. OBERHOLSER, Washington, D. C.

A Self-tamed Ruffed Grouse.—The following is an account of a tame Ruffed Grouse: the first statement is by Miss Torrey. In the spring of 1914, probably in April, as I was driving back and forth to the village to High School, I first noticed a rustling in the leaves and bushes by the

side of the road and watched until I found out that it was caused by a Partridge or Ruffed Grouse. After that I always let the horse walk past the spot, and the bird would walk under cover of the trees for about a hundred yards or more, but never would go any farther. I never tried to tame the bird, only keeping quiet as I liked to have it follow me. It seemed as if it was always watching for me night and morning.

My father first noticed the Partridge in May, when he was plowing, which was on the opposite side of the road, quite a distance from where the bird followed me. As my father is fond of all animals he quickly made a pet of this one and, if I remember rightly, fed it. The bird would follow him while he was plowing but never went with him to the barn.

I think this Partridge must have been left alone, as at that time there were no others about. I should say it was lonely and finding that I did not hurt it, it followed me, until it made friends with others. We never knew of anyone having a tame Partridge or being able to tame one before. The continuation of the account of this bird is by Miss Knight as follows: On returning to Deer Isle, Maine, my home town, to spend the summer of 1914, I heard the neighbors talking about a tame Partridge. They told me that Miss Torrey, as she drove through the woods during the latter part of the winter and early spring, had often seen a Partridge following the team.

My own experience with the bird began a few days later when we went into the woods after strawberries. As we walked along the road a Partridge followed us closely, possibly three or four rods away, in the edge of the wood. We crossed the road and went into the woods on the other side and I forgot all about the bird until suddenly he flew out from under my very feet. When I came home the Partridge walked down the wood road, flew across the highway road, and followed me fifteen or twenty rods on the side on which I had first seen him.

A few days after this, when father and I were driving to the village we saw the bird again following us for a few rods.

Accidentally we discovered that we could call him at any time we wished by going to the section of wood which he frequented, and whistling. After we had whistled a few minutes he always appeared, never on the wing but walking, coming from various directions but always on the same side of the road, although later if we crossed the road he crossed also. As the summer passed he became more and more friendly, often hopping up into our laps. As he strutted around us he frequently made a soft cooing sound in his throat. He never liked to be caught and held, but would allow himself to be petted. He would feed from our hands. He did not care for corn, but enjoyed berries, especially huckleberries. During the summer he shed out all his long tail feathers, as may be seen in some of the photographs, and we kept several of these feathers as souvenirs.

The bird seemed to have a fondness for the color blue, for he would hop up into the lap of anyone dressed in that color. One day I tested this several times as follows. I wore a blue skirt under a pink skirt. So long

as the pink skirt was prominent he would not come into my lap. As soon as I folded that back he came up onto the blue skirt.

Throughout the summer we showed the bird to many of our friends. In the fall, father talked of taking him home; but I, thinking that he might be unhappy if confined, urged that he be left in his natural surroundings. Late in the fall some workmen who did not know the story of the tame Partridge were driving through the woods and the bird flew on the horse's back and then down into the road. One of the workmen seized a tool from his kit and threw it, striking the bird and killing him."—
RUTH M. TORREY AND MARTHA G. KNIGHT, *Deer Isle, Maine.*

Unusual Contents of a Mourning Dove's Nest.—On May 5, 1917 while passing a clump of thorns, a Mourning Dove flushed from her nest therein, and was almost immediately followed by a young bird, nearly full grown and able to fly fairly well, which awkwardly alighted near by. As it was rainy and cold, and had been so for a week past, I would have passed on without further disturbing them had I not noticed that another young bird remained in the nest and seemed to be very wet and apparently dead with head hanging over the rim. I determined to remove it, as the other bird might wish to return.

The bush was very thorny and I had trouble in forcing my head and shoulders up through the tangle for the few feet necessary. I found that the bird was alive but very wet and weak as though the old bird had not been able to protect both young through such a long stretch of bad weather. My surprise came, however, when I discovered that the nest also contained three eggs, which, held to the light, seemed well along in incubation. They could not have been placed there by boys as the nest situation was such that had it been tampered with, broken twigs would have told the story, for I had to break and force a passage through to the base of the tree as well as to break one for my head as I climbed up a few feet. Returning on May 8 I found the nest deserted, the young bird dead and one of the eggs broken. I have heard before of sets of three of the Mourning Dove, but never heard of them being laid before the first brood had left the nest.

This clump of thorn was on a river flat, several acres of which is thickly grown up with several varieties of haws, wild crab, and wild apples and is used by Robins, Cowbirds, Grackles and Mourning Doves as a roost. Some 2000 Robins use this roost, the males and non-breeders even resorting to it nightly during the nesting season. During the migrations and after the Blackbirds flock it is also used by about 1000 Bronzed Grackles and several hundred Cowbirds. The Mourning Doves use it not only as a roost, but also as a nesting place. Their numbers, however, are comparatively small; probably not over 150 after the breeding season is over. About ten days after finding the nest described in this note, I made a survey of the thicket and found twenty-two occupied nests of the Mourning Dove,—and one of them contained three eggs.—E. A. DOOLITTLE, *Painesville, Ohio.*

Mourning Dove wintering in Vermont.—I have never known of a Mourning Dove wintering in this state, but on January 8, 1919, one was taken alive in Shaftsbury, Vt. It died the following day but was mounted and is now in the collection of Henry Bradford, Bennington, Vt.

Robins, Meadow Larks, and Sparrow Hawks are wintering in Bennington—a very unusual thing—due, I suppose, to the mildness of the winter and to the lack of snow.—LUCRETIVS H. ROSS, Bennington, Vt.

***Thrasaetos* versus *Harpia*.**—The generic name currently used for the Harpy Eagle is *Thrasaetos* Gray, because *Harpia* Vieillot is preoccupied by *Harpia* Illiger (Prod. Syst. Mamm. et Avium, 1811, pp. 118–119) for a mammal. Vieillot's name, however, was first spelled *Harpia* (Analyse Nouv. Ornith. Elém., 1816, p. 24; type by monotypy, *Vultur harpyja* (Linnaeus), in which form, with one less syllable, it is according to the International Code of Nomenclature, not invalidated by *Harpia*. Furthermore, the original spelling of the specific name of this species is *harpyja* (*Vultur harpyja* Linnaeus, Syst. Nat., ed. 10, I, 1758, p. 86; Mexico); and the Harpy Eagle should, therefore, now stand as *Harpia harpyja* (Linnaeus).

It may be worth while also to call attention to the fact that Swainson in 1827 spelled this generic name *Harpya* (Philos. Mag., new ser. I, No. V, May, 1827, p. 366); and that the generic name *Thrasaetos*, commonly attributed to G. R. Gray, is merely a manuscript name of Gray's, originally published by Bonaparte (*Thrasaetos* Bonaparte, Proc. Zool. Soc. Lond., 1837 (June 14, 1838), p. 108 [ex G. R. Gray MS.], type by monotypy, *Vultur harpyja* Linnaeus).—HARRY C. OBERHOLSER, Washington, D. C.

The Status of the Generic Name *Archibuteo*.—The generic name *Archibuteo* Brehm has for long been in use for the Rough-legged Hawks. This name, proposed in 1828 by Brehm (Isis, XXI, No. 12, December, 1828, col. 1269), was based solely on the "Rauchfussbussard" and two nomina nuda, *Archibuteo planiceps* Brehm and *Archibuteo alticeps* Brehm; hence *Falco lagopus* Brünlich, to which from Brehm's later publications all these evidently must be referred, has been commonly considered the type of *Archibuteo*. In the original description, however, aside from the two pure nomina nuda, only the vernacular name without citation of authority or anything else that would serve to identify it, is given. The generic term *Archibuteo* is, therefore, certainly a nomen nudum at this place, as is clearly indicated by the International Code of Nomenclature and current practice. The earliest tenable citation for *Archibuteo* is in 1831 (Brehm, Handb. Naturg. Vog. Deutschlands, 1831, p. 38), when Brehm gives as the two included species, *Archibuteo planiceps* Brehm and *Archibuteo alticeps* Brehm, here fully described, both of which are synonyms of *Falco lagopus* Brünlich. Meanwhile, however, two other names were introduced for the group—*Triorchis* Kaup (Skizz. Entw.-Gesch. Natürl. Syst. Eur. Thierw.,

1829, p. 84; type by monotypy, *Falco lagopus* Brünnich); and *Buteo* Lesson (Traité d'Ornith., May 8, 1830, p. 83; type, by monotypy, *Falco lagopus* Gmelin). The first of these becomes, therefore, the tenable name for the Rough-legged Hawks, since it is not preoccupied by *Triorches* Leach (Syst. Cat. Indig. Mamm. and Birds Brit. Mus., 1816, p. 10; type, by monotypy, *Pandion fluvialis* Savigny = *Falco haliaetus* Linnæus), for the latter must be regarded as a different word from a nomenclatural standpoint because of its different classical ending. By reason of this the two forms of the Rough-legged Hawk will stand as follows:

Triorchis lagopus lagopus (Brünnich).

Triorchis lagopus sanctijohannis (Gmelin).

HARRY C. OBERHOLSER, Washington, D. C.

Harris's Hawk (*Parabuteo unicinctus harrisi*) in Kansas.—A fine specimen of a female Harris's Hawk was killed seven and one half miles southwest of Lawrence, Kansas, December 25, 1918, by Fred Hastie and is now in the skin collection of the University of Kansas Museum.

So far as I know this Hawk has not been reported before from the state.—
C. D. BUNKER, Lawrence, Kansas.

The Proper Name for the Texas Barred Owl.—Some time ago ('The Auk,' XXV, No. 3, July, 1908, page 316) Mr. Outram Bangs renamed his *Syrnium nebulosum helveolum* (Proc. New Engl. Zool. Club, I, March 31, 1899, page 31) because, when transferred to the genus *Strix*, it was supposedly preoccupied by *Strix helvola* Lichtenstein (Verz. Samml. Säugeth. und Vögel n. Kaffernlande, 1842, page 11). Since, however, both *helveola* and *helvola* are classical Latin adjectives differing in the possession of an additional syllable, they are to be regarded as different words, and therefore by neither the International Code of Nomenclature nor the A. O. U. Code would they conflict when employed in the same genus. It thus becomes necessary to return to the earlier name for the Texas Barred Owl, and it will consequently stand as *Strix varia helveola* (Bangs).—HARRY C. OBERHOLSER, Washington, D. C.

Concerning a Note of the Long-eared Owl (*Asio wilsonianus*).—I was interested in the note of Mr. G. Clyde Fisher in the last number of 'The Auk,' with similar heading to the above. I can furnish information which will help to verify the conclusions which Mr. Fisher reached as to the source of the sound he heard. On August 9, 1914, while camped near Red Eagle Lake, in the Glacier National Park, I heard a sound of some night bird, which was very similar to the sound described by Mr. Fisher, and for which I could give no better description than the phrase he uses, I tried to investigate the source of the sound, and soon found several owls, at least four being seen at once. It was moonlight at the time. The country consisted of a mountain meadow, dotted with clumps of fir trees, and the Owls were easily seen as they flew from one clump to another at

my approach. I followed, and soon got a good view of one silhouetted against the sky, as it sat in the top of a fir. The bird was evidently watching my approach, and its ear tufts could be plainly seen. From their position, rising from the center of the head, rather than the sides, as well as from the size of the bird, I felt sure that it was a Long-eared Owl. I believe that the birds were a family containing both adults and young, and that they had been attracted by the light of our camp fire. This is the third time that I have known these Owls to be attracted by the light of a camp fire in the mountains of Montana.—ARETAS A. SAUNDERS, Norwalk, Conn.

The Short-eared Owl Breeding on Nantucket.—In 'The Auk' for January, 1919, Mr. Francis H. Allen, reporting the occurrence of the Short-eared Owl (*Asio flammeus*) at Nantucket in August, 1918, speaks of the somewhat doubtful status of this Owl as a breeding bird in Massachusetts, and quotes the opinion of Mr. George H. Mackay that at one time it doubtless bred quite regularly on Nantucket and more rarely on Muskeget Island.

There is, I think, good reason to believe that this Owl has nested on Nantucket in recent years not less regularly than in the past. In the years 1908 to 1912 when, in the month of June, I explored the island intent on its plants, but always with a side eye to birds, the Short-eared Owl was frequently met with, this and the Marsh Hawk appearing to be the only raptorial birds of the island at that season. In 1912 it was more numerous than at any time before, or else chance made it so appear, and between June 27 and July 14 not less than twelve were observed. On June 10, 1908, a nest containing two eggs, evidently fresh, was found in Trot's swamp on the western side of the island. The locality was a dryish open part of the swamp less than an acre in extent hemmed about on all sides by thickets that were in many places swampy and impassable. The nest, a slight structure of grasses and other light material, was set in a cluster of hay-scented fern (*Denntstædia punctilobula*) whose delicate fronds rising around the margin of the nest gave less protection than concealment and, indeed, little concealment from above, for down within the encircling ferns the eggs were in open view. At this spot the ground was slightly raised above the level of the swamp, and the unrestrained growth of this fern attested that here, even in a wet season, the soil must be free from saturation. The sitting bird left the nest at my near approach, when its mate almost immediately appeared, both birds ranging widely about well in the air at no time coming very near and, at intervals, almost pausing in their flight directly overhead. One or both birds continually repeated a weak and expressionless guttural note—as memory now recalls it. The eggs, measured at the nest and replaced, were 1.37 and 1.44 inches in length—small for the species according to published measurements.

South of Nantucket the Short-eared Owl has not often been reported in its breeding season. There are several records of its having nested

along the New Jersey coast, even as far south as the Cape May region, but I do not know that it has ever been found breeding on Long Island. There would seem to be little doubt, however, that it has recently nested there at Long Beach. At that place, on May 25, 1917, I watched a pair of these owls, evidently, from the disparity in their size, a male and female, repeatedly attacking a single Crow. The birds were flying about over a tract of dunes and thickets flanking a salt marsh inaccessible to me across a broad creek. The Crow, perhaps to escape the Owls, perhaps intent on depredation of their nest, several times swept down to the ground about a certain spot, the Owls pursuing it or awaiting its return into the air when attack and counter-attack were renewed. The following year at the same place a pair were observed on February 22, attacking a Marsh Hawk, one was seen on April 12, a pair on May 17, and again a single one on August 9. —EUGENE P. BICKNELL, *New York City*.

Early Occurrence of the Snowy Owl and the Pine Grosbeak in Monroe County, New York.—On November 3, 1918, while riding on a trolley car toward the lake, my attention was called by the motorman, to a large Snowy Owl (*Nyctea nyctea*) which was sitting on the top of a wooden pole in a gravel bed and about 150 feet from the tracks.

He also informed me that the bird had been in the same place while on a previous trip an hour and a half before. Later it was seen to fly into a nearby vineyard. The locality was in the town of Irondequoit, a mile and a half from Lake Ontario. On the same afternoon at 3.30 o'clock, while walking along the border of the woods at Durand-Eastman Park, near the lake, I observed three Pine Grosbeaks (*Pinicola enucleator leucura*). There were two females and one male, they were feeding in some bushes close to the roadway and were very tame, allowing me to approach within ten feet of them, when they would fly into the nearby bushes. This is the earliest record that I can find of their occurrence in Monroe County.—LUCIUS H. PAUL, *Rochester, N. Y.*

The Deep Plantar Tendons in the Puff-birds, Jacamars and their Allies.—One of the most distinct and peculiar types of the deep plantar tendons in birds is that known as the *antiopelmous*, characterizing certain zygodactyl groups such as the Woodpeckers, Toucans and their allies. In this arrangement of the simple *flexor perforans digitorum* runs to the third toe, while the trifurcate *flexor longus hallucis* supplies the first, second and fourth toes. The two tendons are connected by a vinculum which runs from the *flexor longus* to the *flexor perforans*.

The nature of these tendons in the Puff-birds (*Bucconidae*) and Jacamars (*Galbulidae*) is of special importance in determining the systematic position of these families. Both are commonly given as *antiopelmous*, perhaps on the sole authority of Garrod (cf. P. Z. S., 1875, p. 345; also Sclater's Monograph of the Jacamars and Puff-birds, p. XXVIII). The following species were examined by Garrod: *Galbula rufoviridis*, *G. albirostris*, and

Urogalba paradisea of the Galbulidæ, and *Monasa flavirostris*, *Malacoptila fusca* and *Bucco maculatus* of the Bucconidæ. Of allied groups the following were determined: *Ramphastos ariel* (Ramphastidæ), *Megalæma asiatica* (Capitonidæ), *Gecinus viridis* and *Tiga javanensis* (Picidæ).

Descriptions of the plantar tendons in other groups have so often proven erroneous that the verification of all such statements is desirable. This is my excuse for the present note which merely confirms the observations of Garrod; however the species, with one exception, and three of the genera are different and I am able to point out one or two minor variations.

I have made careful dissections of specimens of *Monasa grandior* and *Malacoptila inornata* (Bucconidæ), *Galbula melanogenia* (Galbulidæ), *Ramphastos ariel* (Ramphastidæ), *Chloronerpes yucatanensis*, *Dryobates villosus* and *Campephilus malherbii* (Picidæ). The essential antiopelmous arrangement is the same in all, but several variations occur that are worthy of note.

In *Chloronerpes*, *Megalaima*, *Ramphastos*, *Malacoptila* and probably *Monasa*, the distance between the first and second bifurcations of the *flexor longus* is much greater than in *Dryobates* and *Galbula*; in *Campephilus*, on the other hand, the three slips spring from practically the same point. The position of the vinculum is somewhat variable. In *Ramphastos*, *Megalæma* (Garrod), *Dryobates*, and *Campephilus* the vinculum leaves the *flexor longus* decidedly above the primary bifurcation of the latter; in *Malacoptila*, *Galbula* and *Chloronerpes* at the extreme lower end of the main tendon, just as it divides, while in *Monasa* (as recorded by Garrod also) it originates from the upper ends of the two branches.

Stejneger states (on what authority I do not know) that the Honey Guides (Indicatoridæ) are antiopelmous. There is every reason to believe this statement correct and also to assume that the Wrynecks (Jyngidæ) and Piculets (Picumnidæ) have the same arrangement.

This close agreement in the deep plantar tendons is, as remarked by Dr. Stejneger, strong evidence of the mutual relationships of the families possessing this unique arrangement. As this character is not neutralized or overbalanced by any of equal or greater value we may regard these families as forming a natural group, an order or suborder, characterized essentially by their antiopelmous, zygodactyl feet. In other zygodactyl birds, the Parrots and Cuckoos, the tendons are of the wholly different desmopelmous type, and moreover the ambiens muscle, absent in the antiopelmous group, is here present.—W. DEW. MILLER, *American Museum of Natural History, New York City.*

The Status of the Genus *Hypocentor* Cabanis.—The genus *Hypocentor* was originally instituted by Cabanis (Mus. Hein, I, 1851, p. 131) for three species of Buntings, *Emberiza aureola* Pallas, *Emberiza fucata* Pallas, and *Emberiza rustica* Pallas. Its type was soon afterward designated by Gray (Cat. Gen. and Subgen. Birds Brit. Mus., 1855, p. 79) as *Emberiza aureola* Pallas. Modern authors have commonly synonymized

it with *Emberiza* Brisson, but an examination of its type and comparison with typical species of *Emberiza* shows that it is well differentiated as a generic group. It differs from *Emberiza* Brisson (type, by tautonymy, *Emberiza citrinella* Linnæus) as follows; bill slenderer, more compressed, more sharply pointed, thus less conical; basal two-thirds of culmen straight or even somewhat concave, instead of convex; maxillar and mandibular tomia vertically not so strongly concave, thus not giving the closed commissure the somewhat open appearance that it has in typical species of *Emberiza*; palatal surface of maxilla lacking the peculiar rounded protuberances of *Emberiza*; mandible more rounded (less squarish) basally; gonys very long, its length much more than the height of the bill at base (instead of about equal to that dimension), and not strongly ascending, the gonydeal angle therefore not so prominent; tertials and tail much shorter.

The species to be included in this genus are at least the three originally indicated by Cabanis, the last one of which is North American by reason of its accidental occurrence on Kiska Island in the Aleutian Islands, Alaska. These are:

Hypocentor aureolus (Pallas).

Hypocentor fucatus (Pallas).

Hypocentor rusticus (Pallas).

HARRY C. OBERHOLSER, Washington, D. C.

A Correction Involving Some Juncos.—An error that may be explained as due to oversight, inadvertence, plain stupidity or all three combined, crept into my paper on the Juncos (Bull. Am. Mus. Nat. Hist. XXXVIII, 1918, p. 296) and Mr. Todd has called my attention to it. In placing *insularis* under *mearnsi* as a race, I quite forgot that the former name has many years priority. Therefore the Pink-sided Juncos should stand as follows:—

Junco insularis mearnsi

Junco insularis insularis

Junco insularis townsendi

JONATHAN DWIGHT, M. D. New York City.

An Additional Record of *Ammodramus savannarum bimaculatus* in Eastern Washington.—Although the breeding range of the Western Grasshopper Sparrow is stated by the Check List (A. O. U. Check-List of North American Birds, 1910, p. 257) to embrace "Transition and Austral zones from southeastern British Columbia, northwestern Montana, and southern Minnesota south to southern California and southern Texas," it appears that only one actual record of occurrence in eastern Washington has been published to date. Dr. Lee R. Dice took two adult males in breeding plumage in a wheat field in the Touchet Valley, near Prescott, Walla Walla County, on June 16, 1908 (Auk, Vol. XXVII, 1910, p. 217).

On May 29, 1918, a bird which I am practically certain was of this species was encountered in a grassy swale not far from Pullman, Whitman County. When first sighted it was perched on a grassy tussock near the bottom of the swale. When flushed it flew to a grass clump some distance up a gentle hill slope, disappearing from view in the usual slinking fashion. Too much reliance cannot, of course, be placed on this record, since the bird was not secured.

On June 13 I noted the song of a Grasshopper Sparrow in a grain field near Six Mile Ranch, six miles south of Sprague, just over the line in Adams County. The bird was pursued for some time before it was finally taken. Its actions were as usually described, the bird characteristically dropping behind a grass tussock, ledge of earth or pile of brush, and then, with bill low, body in crouching position, and tail drooping, sneaking off through the grassy vegetation, refusing to flush until one was too close to shoot.

The bird is now No. 262090, U. S. National Museum, Biological Survey Collection. It is a male in much worn plumage.

These experiences during the past field season indicate that the Grasshopper Sparrow is probably more common in eastern Washington than has previously been supposed.—WALTER P. TAYLOR, *Biological Survey, Washington, D. C.*

The Dickcissel in New Hampshire.—At Concord, New Hampshire, on October 13, 1918 I shot a male Dickcissel (*Spiza americana*) in immature plumage. It was alone at the moment, in birches at the edge of woods that bordered extensive fields of corn and stubble, the autumnal resort of sparrows of several kinds, which were then swarming there among the weeds. The only records of the bird from north and east of Massachusetts with which I am acquainted are as follows:

Maine, September 29, 1884. C. W. Townsend (Auk, 1885, p. 106).

Maine, October 10, 1888. A. H. Norton (Auk, 1893, p. 302).

Nova Scotia, September 13, 1902. J. Dwight, Jr. (Auk, 1903, p. 440).

FRANCIS BEACH WHITE, *Concord, N. H.*

Early Nesting of the Loggerhead Shrike *Lanius ludovicianus ludovicianus* at Savannah, Ga.—I am indebted to Mr. Gilbert R. Rossignol, of Savannah, Ga., for the privilege of announcing the taking by him on February 15, 1919, at Savannah, of a nest and five eggs of the Loggerhead Shrike. Mr. Rossignol first discovered the birds building the nest in a live oak tree, among a cluster of vertical shoots, on January 16. The eggs were all fresh and the nest was approximately twenty feet from the ground.

In the vicinity of Charleston, S. C., the earliest dates upon which I have found eggs were on March 24, 1916, six eggs almost hatched, and March 13, 1917, five fresh eggs, both nests being found in the same live oak tree and doubtless belonging to the same pair of birds.—ARTHUR T. WAYNE, *Mt. Pleasant, S. C.*

A Note on the Decrease of the Carolina Wren near Washington.—

The winter of 1917-1918 in the vicinity of Washington, D. C., with its prolonged cold and unusual fall of snow, was a severe one for many birds, a fact that was manifested especially in the case of the Carolina Wren (*Thryothorus l. ludovicianus*). Near Washington Carolina Wrens increased steadily in numbers in the period extending from 1912 to 1917, and during the last two years of this time were common. Their abundance at Plummer's Island, Maryland, was noticeable, and birds were seen or heard on practically every visit to that vicinity. Through December, 1917, and January, 1918 they remained in their usual numbers. February 1, during a visit made to Plummer's Island immediately after a heavy snowfall I found that the snow in the woods where it had not been drifted was sixteen inches deep. Several Carolina Wrens were seen on this day. One was observed climbing up the trunk of a red birch, where the bird broke open the curling rolls of bark, in search for food, making a rattling, rustling noise audible for some distance. Another was clambering about the eaves of the cabin. Both of these feeding habits were more or less unusual. This heavy snow covered the ground for a considerable period after this and must have rendered food difficult to find. Immediately after February 1 the Carolina Wrens in the area under consideration disappeared, and the supposition was that the greater part of them had perished. Only three of four pairs were known to remain in the region between the end of the carline at Cabin John's Bridge and Plummer's Island, while none were left on the island property. The same decrease in number among these birds was observed throughout the entire Washington region and when spring opened it was found that there were only scattered pairs in a few areas.

In a former note (published in 'The Condor,' 1913, pp. 120-121) I have called attention to a similar occurrence in eastern Kansas, where other species of birds in addition to Carolina Wrens were concerned. These observations and others of a similar nature seem to show that the Carolina Wren is a bird that may be considered resident in the strictest sense of the word in regions where it is found. In many so-called resident species, though the species as a whole is represented at all seasons individuals are migratory and perform regular journeys each year. With the Carolina Wren however, this does not seem to be true, as adult individuals (in pairs) frequent certain restricted areas throughout the year without reference to season. The immature birds that have not yet become settled, wander somewhat during spring and fall, and individuals may occur at this time in cities or elsewhere outside of their normal haunts. These movements however, are irregular, and seem at most to be restricted to short distances when compared with the regular spring and fall movement found among other birds of recognized migratory habits. It is by these restricted movements that these Wrens extend their local range.

At Plummer's Island one of these wanderers visited the island and adjacent parts of the mainland on April 7 and worked restlessly about, singing loudly. No others were observed during the spring and summer

months and the species did not occur again until December 8 when one was observed skulking in a brush pile below the cabin. One bird (presumably the same one) is still present on the island at present writing (January 12, 1919).

The instances given here are indications of the conditions limiting the range of the Carolina Wren, in one direction at least and show, too, how readily a species apparently common may be reduced or even exterminated in a given region in a very short period of time. In the case of the Carolina Wren the heavy blanket of snow covering the food supply would seem to be the direct cause of extermination rather than prolonged cold, as here at Washington these birds were able to survive a low temperature for a considerable period but were killed when deep snow covered the greater part of their normal feeding ground. It is to the comparatively few that are able to survive that we must look for the perpetuation of the species. The increase in numbers however, seems to be a slow process, as following their decrease in 1912, I found the species still comparatively rare near Lawrence, Kansas, in 1914, 1916 and as late as November, 1918.—ALEXANDER WETMORE, *Biological Survey, Washington, D. C.*

The Affinities of *Chamæthlypis*.—As generic distinctions become more and more refined the need of a supergeneric group intermediate between the family or subfamily and the genus, corresponding approximately to the former genus, becomes increasingly evident.

In his great work on the 'Birds of North and Middle America' Mr. Ridgway has supplied this want in many families. In the Warblers (Mniotiltidae) the grouping does not appear to be so successful as in most cases. Not only is the old genus *Geothlypis* broken up into three genera but these are distributed in as many supergeneric groups. *Oporornis* is banded with *Dendroica* and its allies in the Dendroiceæ, while *Chamæthlypis* is placed in the Icteriæ.

We cannot help feeling that this arrangement is artificial, and that too much importance has been placed on the length of the wing-tip (easily modified by habits and migration), and insufficient weight given to coloration, nesting and even song.

Also, the distinctions are partially invalidated by exceptions. Thus the sections including *Geothlypis* and *Chamæthlypis* are separated by differences in the length of the tail and form of the bill; but *Geothlypis nelsoni* agrees with *Chamæthlypis* in having the tail longer than the wing. Again the Geothlypeæ are separated from the Dendroiceæ by having the rectal bristles obsolete and the wing-tip shorter, but in *Geothlypis equinoctialis* and *G. cucullata*, at least, the rectal bristles are well-developed.

The particular point of criticism is in regard to the affinities of *Chamæthlypis* which is distinguished from *Geothlypis* by its stouter bill, with strongly curved culmen, and its longer, graduated tail.

Mr. Ridgway expresses the opinion that while "this genus is very much like *Geothlypis* as to its general appearance" it is "quite distinct struc-

turally, in which respect it comes much nearer to *Icteria*." I have carefully tabulated the structural differences between these three genera, and the result to my mind unquestionably indicates a nearer relationship of *Chamaethlypis* with *Geothlypis*.

Sharpe (Hand-List of Birds) while recognizing *Chamaethlypis*, included in this genus two South American species of *Geothlypis*, *G. æquinoctialis* and *G. auricularis*. These two species and *G. cucullata* are intermediate between *Chamaethlypis* and the typical species of *Geothlypis* in coloration and in the form of the bill and have well developed rectal bristles as in *Chamaethlypis*. They do not, however, approach the latter genus in the length of the tail, as do certain Mexican species of *Geothlypis*, notably *G. nelsoni*.

While in Nicaragua in the spring of 1917 I had the opportunity of hearing the song of the 'Ground-chat' on several occasions. It is a highly musical warble resembling that of *Geothlypis semiflava bairdi* but even superior; the songs of both these species much excel that of *G. trichas*. The song of *Chamaethlypis* possesses nothing whatever of the eccentric qualities of the Yellow-breasted Chat's vocal performance.

In conclusion, the evidence of size, coloration, external structure and song, strongly indicate the near relationship of *Chamaethlypis* with *Geothlypis* and the more remote affinity of the former with *Icteria*. The first two genera are, in fact, practically connected by intermediate species.—W. DEW. MILLER, *American Museum of Natural History, New York City*.

Blue-winged Warbler Feeding a Young Field Sparrow.—On June 16, 1918, I was passing through a brushy area near Norwalk, Conn., when my attention was attracted by a Blue-winged Warbler (*Vermivora pinus*) evidently much excited at my presence as though it had a nest or young in the vicinity. It carried a green caterpillar about with it, as though wishing to feed young, so I sat down to watch it. A Field Sparrow (*Spizella pusilla*) soon appeared and also manifested excitement at my presence. After some waiting the Blue-wing approached a certain point in the bushes so frequently, that I got suspicious and searched it, finding to my surprise a young Field Sparrow, evidently just out of the nest and unable to fly. I waited some time longer, hoping to find the young of the Blue-wing, and finally the latter got over its fear, and approached the young Field Sparrow, and fed it the caterpillar it had been carrying. The adult Field Sparrow remained near-by but would not go to the young bird.

This incident seems rather surprising, but I believe it is explained by supposing that the two species nested near each other; that the young of the Blue-wing were destroyed by a natural enemy just as they were about to leave the nest; and that the adult Blue-wing, finding a young Field Sparrow of about the same age nearby, fed it, perhaps not realizing that it was not its own offspring, and in any event, satisfying its natural instinct to feed and care for young at that time.—ARETAS A. SAUNDERS, *Norwalk, Conn.*

The Blue-winged Warbler near Boston.—Walking in dry, scrubby woods in the town of Brookline, Mass., May 19, 1918, Dr. Charles W. Townsend and I found a Blue-winged Warbler (*Vermivora pinus*) singing the typical song of the Golden-winged Warbler (*V. chrysoptera*). The bird had the bright-yellow throat, breast, belly, and crown and the black line through the eye, and we had no hesitation in pronouncing it a Blue-winged Warbler. As this species is regarded as extremely rare in Massachusetts (see note by Mr. Horace W. Wright, Auk, 1917, pp. 482, 483), the bird was afterwards visited by other observers, some of whom saw it to better advantage than we did and discovered that its wing-bars were yellow, not white as in typical examples of the species. Among these observers were Mr. Charles J. Maynard, Judge Charles F. Jenney, Dr. John B. Brainerd, Mr. Barron Brainerd, and Mr. Henry S. Shaw. Mr. Maynard, who visited the locality June 15 in company with Judge Jenney and Mr. Shaw, wrote me under date of July 31, 1918: "I saw the bird very distinctly a number of times and clearly saw that it had decidedly yellow wing-bands, not as yellow as those of the Golden-winged, yet decidedly yellow, and we heard no other song than the one indistinguishable from that of the Golden-wing. . . . I was interested in trying to find whether the bird was mated, but we did not succeed in finding any mate." None of the observers saw anything of a mate, and none heard any other song from the bird than the Golden-winged Warbler song. Illness in my family prevented my visiting the locality again until July 10, when the bird was not to be found, and the Golden-winged Warblers, two of which had been found there before had also stopped singing.

Forms of the Blue-winged Warbler with yellow or yellowish wing-bars are not very rare in collections, and Dr. Louis B. Bishop, who has a large series of this species, makes particular mention of them in his paper on 'The Status of *Helminthophila leucobronchialis* and *Helminthophila lawrencei*' in 'The Auk,' 1905, XXII, p. 21-24. In the light, however, of Dr. Walter Faxon's discovery of the hybrid nature of Brewster's Warbler it seems probable that these non-typical examples are really of mixed ancestry and possess a modicum of *chrysoptera* blood. This seems the more likely in the case of our Brookline bird because it sang the *chrysoptera* song, as do most, if not all, of the *leucobronchialis* found in this region. Mr. William Brewster permits me to cite him in support of this theory, and Dr. Bishop writes me, "I think it quite possible your bird had a '*lawrencei*' as a more or less remote ancestor, which means *chrysoptera* of course farther back, added to its predominant *pinus* blood."

Though our bird was found, as I have stated, in the town of Brookline, the cities of Boston and Newton also corner near by, and, as Judge Jenney has pointed out to me, it doubtless had in its daily range not only these three municipalities but also the three counties of Norfolk, Suffolk, and Middlesex to which they severally belong.—FRANCIS H. ALLEN, *West Roxbury, Mass.*

Nashville Warbler (*Vermivora ruficapilla*) in New York in Winter.— This is not merely a winter record for New York City but for a backyard garden on Broadway. This bird was first seen by Mrs. Chubb on December 16, 1918. It was feeding on aphids which were still very abundant on some brussels sprouts in a very small garden patch.

Up to the present date, January 9, I have seen the bird frequently. Apparently it visits the garden daily where the aphids still survive the mild winter. The bird is in perfect flight and apparently normal in every way. It was also identified today by Mr. W. DeW. Miller.— S. HARMSTED CHUBB, *New York City*.

Four Rare Birds in Sussex County, New Jersey.— In the fall of 1918 the American Museum of Natural History received in the flesh a female Northern Pileated Woodpecker (*Phlaeotomus pileatus abieticola*) shot in the Kittatinny Mountains, three miles southwest of Culver's Gap, Sussex Co., New Jersey, on Oct. 12, and an adult female Golden Eagle (*Aquila chrysaetos*) killed in the same locality on November 23.

On a visit to this region from October 19 to November 3, I was gratified to find that the Pileated Woodpecker still exists in the larger woodlands of Sussex County. Many characteristic examples of their work, both old and fresh, were found and several birds were seen.

Through the kindness of Mr. Justus von Lengerke, I am able to record a Raven (*Corvus corax europhilus*) also from the vicinity of Culver's Gap. This bird, which was accompanied by another individual of the same species, was secured by this gentleman on September 21 and is now in his possession.

Mr. von Lengerke tells me that the Goshawk (*Astur atricapillus atricapillus*) is a regular winter visitor in northwestern New Jersey, but usually rare. In the fall and winter of 1916-17 and again in 1917-18 there were, for the first time in his experience, large flights of the Goshawk two years in succession. In the former season Mr. von Lengerke, who makes special efforts to kill these destructive birds, secured about nine Goshawks; in the latter he personally killed sixteen (fifteen at Stag Lake, Sussex Co., and one about ten miles from this locality), and knows of two more shot in the same county. In the fall of 1918 he handled eight individuals, five of which were killed by himself and his son.— W. DEW. MILLER, *American Museum of Natural History, New York City*.

Notes from a Connecticut Pine Swamp.— The pine swamp of which I write is situated in the township of Ledyard, Connecticut, two miles east of Gales Ferry and the Thames River, and about eight miles north of Fisher's Island sound. It runs north and south for about half a mile, and is three hundred feet above sea level. In it grow tall white pines, though many which formerly grew along the edges of the swamp have been cut down. It is a wild place, containing the usual "Bottomless Pit," the old time farmers, with their longest poles, being unable to find a bottom. Once upon a time, also, a wildcat inhabited it— so sayeth tradition!

The native *Rhododendron* (*R. maximum*) grows here in profusion attaining a height of twenty-five, or more, feet, and is a wonderful sight when in blossom in July. There is also much laurel and many hardwood trees on the edge of the swamp. On July 5, 1918, walking here among the *Rhododendrons*, listening to the songs of the Hooded Warbler, I made a discovery. The Hooded Warbler is quite common in this locality and sings freely. I heard the two songs on this day — one of which seems to say "you're it, you're it, you're it, you're it yourself" sung rapidly and varying in the number of "you're its." The other song seems to say "Nobody can touch me-è," a rising inflection on the end. They made me think of children playing tag. Suddenly a strange distant song drew my attention and I hastened along listening intently — then as I stood on a rock surrounded by *Rhododendrons* out flew a beautiful Black-throated Blue Warbler, which alighted on a tree and sang. It flew about from tree to tree quite near and sang over and over again, and was answered by the same song from a more distant bird. The song was much finer than the books lead one to suppose. About six zees — the first three seeming to have a sort of double resonance and the last longer drawn out and higher. Of course the birds were nesting here, but although I visited the spot every few days and heard and saw the bird near the same locality, I could never locate the nest, in the wild tangle of growth. The last time that I heard the song was on August 1. In Dr. Bishop's 'List of Connecticut Birds' the Black-throated Blue is given as nesting at Eastford in 1874 and 1881, in Kent in 1905 and in Litchfield in 1905. Near this same place some Broad-winged Hawks were nesting and every time I visited the spot one of them would perch in a tall tree and whistle — a shrill penetrating whistle, although at times they could do it quite softly. They seemed to be unafraid and it was amusing to see one of them watching my dog as he ran among the bushes; it would stretch its neck and twist its head from side to side in a very funny way. For two years now the Solitary Vireo has nested in this vicinity and delighted us with its song all summer.

Still another rarity has been found nesting in this swamp, the Canada Warbler. Dr. Graves found it there on June 25, 1884, and again thirteen years later on July 17, 1897; at this later date he saw and heard a number of them singing. Although looking for it here for the last ten years I have yet to find it nesting. — FRANCES MINER GRAVES, *New London, Conn.*

The Name "erythrogaster." — I have been interested in the discussion about *erythrogaster*, *erythrogastra*, *erythrogastris*, etc. in recent numbers of 'The Auk.' From analogy, both in the Greek and Latin tongues, I make no question of this being an adjective. Thus in Latin, from *longus* and *manus* comes the adjective *longimanus* -a, -um, long-handed. In Greek form (using the Roman alphabet) *leukos* and *lithos*, *leukolithos*, -on. The older naturalists, as many botanists still do, printed specific names that are nouns with an initial capital, those that are adjectives with a lower-case initial. Linnaeus, for instance, who observed this distinction, wrote *Anas*

erythropus, *Hirundo fissipes*, *Fringilla erythrophthalma*, *Parus atricapillus*, etc., showing that he rightly considered these specific names to be adjectives.

From *erythros* and *melas* comes the adjective *erythromelas*, fem. *erythromelaena*, neut. *erythromelan*, red and black. Now if *Piranga* is considered feminine, as it is (*Piranga rubra*), the Scarlet Tanager's name is *Piranga erythromelaena*. There is no escape from this except for those who refuse to make an adjectival specific name conform in gender to the generic name with which it is associated.¹—WALTER FAXON, *Lexington, Mass.*

Constant Difference in Relative Proportions of Parts as a Specific Character.—In the oft-recurring discussions of what constitutes a species and the difference between subspecies and species, one interesting kind of intergradation which might be termed "pseudo-intergradation" had not been mentioned.

This is well illustrated by certain of the Guadalupe Island forms, notably the Rock Wren (*Salpinctes*) which has at times been regarded as a species and again as a subspecies even by the same authority.

The Guadalupe bird, together with its near ally of San Martin Island, differs from its relatives of other islands and the mainland in its longer bill, relatively shorter wing and darker coloration. The difference in proportions is constant so far as known; only exceptionally short-billed specimens agree in the length of this member with the longest billed individuals of other forms, while only very long-winged examples fail to differ from short-winged birds of the related races. This, however, has been held to be intergradation and on these grounds the Guadalupe bird, *S. guadeloupensis*, was degraded to subspecific rank by Ridgway in 1904, even before the somewhat intermediate race *S. g. proximus* was discovered.

Individuals agreeing in the length of the bill, however, naturally exhibit the maximum difference in the length of the wing, while those agreeing in the wing can be distinguished by the length of the bill. In other words the ratio of bill to wing length in the two species *S. obsoletus* and *S. guadeloupensis* is constantly different and furnishes a diagnostic character by which the species may always be distinguished. In the former the wing is more than three and a half times the length of the bill, in the latter less than three and a half. In addition there is a well-marked difference in color.

It seems reasonable to consider such differentiation in proportions when developed to the point where there is constant difference in ratio as of specific value. Measurements appear to indicate that this point has been reached in the Rock Wrens, and that the dark, long-billed forms should therefore be regarded as specifically distinct from the paler, shorter billed races. The same conclusion was arrived at by Swarth in 1914 (Condor, XVI, p. 216).

¹ It is interesting in this connection to note that Ridgway (Bird N. and Mid. Amer., II, p. 101) rejects *P. erythromelaena* Salv. 1868 because of *P. erythromelas* Vieill. 1819 but does not alter the latter!—Ed.

The Guadalupe Junco (*Junco insularis*) easily fulfills the above requirements of a species. Indeed as it averages 10 mm. less in length of wing than its nearest relative *J. townsendi*, and its bill is nearly 2 mm. longer, there is small likelihood even of ordinary intergradation. There are also well-defined color characters.

In Dr. Dwight's recent paper on the Juncos (Bull. Amer. Mus. Nat. Hist., XXXVIII, 1918, p. 269) he has reduced this Junco as well as *Junco townsendi* to subspecies, on the grounds that their characters are *quantitative* rather than *qualitative*. But are their peculiarities merely *quantitative*, and do not the differences exhibited by these forms more nearly approach the characters commonly regarded as of generic value than do the "*qualitative*" color differences between the forms regarded by Dr. Dwight as species?—W. DEW. MILLER, *American Museum of Natural History, New York City*.

"Off" Flavors of Wildfowl.—Following is an extract from a letter on this subject by Dr. L. C. Jones of Falmouth, Mass., who has been quoted in a previous article¹ on this subject. It will be noted that one of Dr. Jones' theories is much the same as that advanced by the writer in the last sentence of his first communication on fishy flavor.²

"I would like to advance a new theory which I think may explain the cause in many cases. I refer to the possibility of "fatigue toxins" in the flesh of birds which have taken long flights and are thin or emaciated and obviously out of condition. The same might hold in those birds which have been shot previously but not wholly disabled. Many of these have intestines agglutinated with peritonitis, local abscesses, or suppurating wounds in the skin or muscles where shot has entered. Unpleasant as it may be to think of this, practically all of these birds reach the market and are undoubtedly eaten, chiefly of course by those who do not dress their own game.

"The more you consider this explanation, the more points you will find to support it. For instance, I have eaten many ducks in the beginning of the season, Redheads, Bluebills and Black Ducks, birds which have just arrived from the north and I think without question that most of them have been comparatively unpalatable. Birds from the same flocks, shot a fortnight or so later, even when the diet has consisted almost entirely of eelgrass seed from the salt water bays and estuaries, have been plump and delicious. May not fatigue with starvation, or rest with repletion, be the great determining factors in the flavor of migrating fowl? You may readily conceive that in certain instances of excessive fatigue or when the abdominal organs were badly infected, the flesh of such birds might be distinctly poisonous. . . ." L. C. Jones, M. D.—W. L. MCATEE, *U. S. Biological Survey, Washington, D. C.*

¹ Auk, Vol. 36, No. 1, Jan., 1919, pp. 101-101.

² Auk, Vol. 35, No. 4, Oct., 1918, p. 476.

RECENT LITERATURE.

'The Game Birds of California.'— One of the most notable of recent American bird books is the handsome work on 'The Game Birds of California'¹ by Grinnell, Bryant and Storer issued by the University of California, as one of its Semicentennial publications. The life histories of game birds have never been so well studied and written up as those of certain other species, because those who have had the best opportunities have been more interested in killing the birds than in studying them. We may search the columns of the sporting journals and while we find an abundance of information on how to shoot game birds, how they act in reference to the gunner, and what fine times the gunner had when shooting them, there is a lamentable lack of careful observation on the life and habits of the birds. State Game Commissions are usually made up of hunters rather than of trained ornithologists and consequently their activities are directed along the same lines and their publications are mainly of the same nature though there are notable exceptions. The supervision of the enforcement of the Migratory Bird Law and the succeeding Treaty with Canada, by a committee of the Biological Survey at Washington, has opened the eyes of the public to the importance of entrusting this sort of work to trained experts and the present volume is an example of a state game publication prepared by just such experts. We have had some similar publications by state or local authorities, notably Mr. E. H. Forbush's admirable 'History of the Game Birds, Wild Fowl and Shore Birds of Massachusetts and Adjacent States,' issued by the Massachusetts State Board of Agriculture, but they are few, and some State Boards unfortunately adopt an attitude of hostility to the Biological Survey and to scientific research, which is unfortunate and deplorable.

The attitude of the University of California, through its Museum of Vertebrate Zoology, in turning to practical advantage the information accumulated through the researches of its trained experts is most commendable. We go to the universities for expert information on all sorts of subjects and why not go to their zoological departments or to the great museums for information on wild life and its preservation?

Dr. Grinnell and his associates have had the advantage of Mr. Forbush inasmuch as they have been engaged in the personal study of game birds along with their other field work for many years, and consequently have accumulated a vast store of original information, while he was forced to compile a large part of his data in a very short period of time. Their

¹The Game Birds of California. Contributions from the University of California Museum of Vertebrate Zoology. By Joseph Grinnell, Harold Child Bryant and Tracy Irwin Storer. University of California Press, Berkeley, 1918. Large 8vo., pp. i-x + 1-642, 16 colored plates and 94 text figures. Price cloth \$6.00 net.

report is therefore an advance over his and is undoubtedly the best work on game birds that has yet appeared in America.

The preliminary chapters treat of the decrease of game, natural enemies of game, gun clubs, introduction of non-native game, game propagation and legislation. From these we learn that the serious decrease in game birds, especially the waterfowl, in California, was first noticed about 1880, since which time it has increased at an alarming rate. In the Fresno region in 1912 flocks of geese were still to be seen in certain sections but ten to twenty years earlier the whole San Joaquin Valley literally swarmed with wild geese during midwinter. "From the windows of a moving train myriads of geese were to be observed, reaching as far as the eye could see on either side of the railroad from Fresno to Stockton — certainly a thousand fold more geese than can be seen today along the same route." The number of ducks sold in the markets of San Francisco according to careful estimates has decreased from 350,000 in 1911-12 to 125,000 in 1915-16. These are but a couple of illustrations from the many facts collected by the authors of this work. Their conclusions are set forth as follows: "The causes of this decrease are many and diverse but all are due in last analysis to the settlement of the state by the white man. Some of these factors, such as excessive hunting and sale of game, are subject to control; but others such as reclamation of land, and overhead wires are inevitable. . . . The game supply of the future must rely upon correct inductions based upon careful study of the entire problem, and final adoption of those means which it is found feasible to employ."

What will be the eventual outcome of the game situation it is hard to foretell. Certainly in our Eastern States the outlook is not encouraging. With the constant decrease in wild land and the issuing of innumerable hunters' licenses, 295,000 in Pennsylvania last year, the native-bred game will surely disappear — indeed even now Quail have to be imported and many states restocked. When the same conditions prevail in the states from which Quail are now obtainable the species will be practically extinct. And so with the game that comes to us from breeding grounds far to the north. When these grounds are all reclaimed the supply will end and in future we shall be dependent upon game propagated especially for liberation on the shooting grounds, as is the case in England.

It is well worth while to have this matter placed before us in all its seriousness as has been done in the present volume, so that the public may realize with what sort of a problem they have to deal and see the necessity of securing expert advice.

In speaking of gun clubs the authors give due credit to the importance of the preserves which they establish and the care that is taken to limit shooting days and stop illegal gunning on the grounds. At the same time they point out that the preserves prove so attractive to the birds that practically all individuals normally scattered over large areas are congregated there, where they are exposed to regular slaughter by the most skilful shots and the ultimate destruction is probably hastened. As to the introduc-

tion of non-native species the author's verdict is strongly opposed to the practice. They rightly assert that the native species are better adapted to our country and it is our duty to use all our efforts toward their conservation.

The systematic account of the various species naturally occupies most of the text and is admirably done. Under each heading come paragraphs on: other names; description; marks for field identification; voice; nest; eggs; general distribution; and distribution in California. Then follows in larger type a general account of the habits and history of the species and its relative importance as a game bird. The birds included are the Geese, Ducks and Swan; Spoonbill and Ibises; Cranes, Rail, Gallinules and Coots; Shorebirds; Quail and Grouse; Pigeons and Doves, 108 species in all. The technical nomenclature follows the A. O. U. 'Check-List' and so do the vernacular names except where they are not in accord with Californian usage. This is perfectly proper in a work of this kind especially as the other names are usually mentioned as well. It is rather amusing however to the eastern ornithologist to read of the Mud-hen "known in booklore as the Coot." The authors would find that along the Atlantic Coast "Mud-hen" means the Clapper Rail while "Coot" is by no means a book name in the Eastern States. A little further information on this point might save some of their readers no little trouble, especially as they refer in one place to the "Mud Hen in the east, meaning the Coot." Twelve of the colored plates are by Fuertes and represent that artist at his best while four are by Major Allan Brooks. They form a valuable addition to the published portraits of American birds and add materially to the attractiveness of this well printed volume.

This work will prove of great importance to many different classes of readers: the sportsman will learn more about the game birds of the state than can be found in any other volume and will find the important recognition characters of each species clearly set forth; the bird student, be he amateur or professional, will find it an invaluable work of reference and the conservationist will find in it the facts and suggestions for which he has been seeking. The bibliographies will also prove of the greatest help to those who wish to carry their studies farther and to consult the other works on the subject.

It is encouraging to know that one of the authors of this work, Dr. Bryant, was called, before his task was completed, to fill an important position in the California Fish and Game Commission, and we wish that all the State Game Commissions might be induced to seek men of this type to carry on their activities — surely that is a most important point in game conservation. — W. S.

Mathews' 'The Birds of Australia.'— Part IV of Vol. VII of Mr. Mathews' great work¹ brings us almost to the end of the Cuckoos, only a

¹The Birds of Australia. By Gregory M. Mathews. Vol. VII, Part IV, December 19, 1918, pp. 321-384.

portion of the text of the Coucal remaining to be completed, so that the next part after considering the Lyre Bird will begin the Passeres.

The present number treats of the genera *Cacomantis*, *Vidgenia*, *Owenavis*, *Chalcites*, *Lamprococcyx*, *Eudynamis*, *Scythrops* and *Polophilus*. The most interesting species among these is the giant "Channel-bill," *Scythrops*, which lays its eggs in the nests of Crows and Crow-Shrikes, birds of about its own size. It has a remarkably loud call and is often active at night, resembling in the latter particular our American Black-billed Cuckoo, while curiously enough its appearance is considered to indicate approaching storms and it is known as "Stormbird" and "Rainbird" just as our own Cuckoos are named "Rain Crows." Further investigation of the origin of this belief would be well worth while for those interested in the "folk-lore" of ornithology. There are eleven plates of the various species and one of the tails of Bronze Cuckoos, all by Grönvold, and among the best that have appeared.

We notice one new genus, *Vidgenia* (p. 327), type *Cuculus castaneiventris* Gould, and one new race *Cacomantis pyrrhophanus vidgeni* (p. 326).—W. S.

De Fenis on Bird Song in its Relation to Music.—This paper¹ is one of the most important and carefully prepared contributions to the study of bird song that has recently appeared. M. de Fenis has considered his subject systematically, under various headings and the results of his investigations are summed up in his conclusion that "The laws of musical development are the same for the music of man as for the song of birds," which corresponds essentially with Mr. Henry Oldys' views on the subject.

The topics which are discussed in the paper are: song of birds in its relation to habits and habitat; difficulties encountered in the notation of bird song; birds which repeat their song regularly; birds which vary their melody but preserve the same rhythm; birds which imitate; birds which improvise.

Many musical and syllabic representations of songs are presented showing some original methods of notation, and illustrating the variation in the song of a single species, especially of the Wren and the Nightingale. An interesting table also shows the relative pitch of the songs of various species of birds in comparison with the range of the human voice and other sounds. In this there seems to be a fairly regular correspondence between the weight of the bird and the pitch of the voice; the highest notes belonging to the smallest and lightest birds.

Those interested in this fascinating subject, which demands considerable musical as well as ornithological knowledge, will do well to read M. de Fenis's valuable paper.—W. S.

¹ Contribution a L'Etude des Cris et Chant des Oiseaux dans ses Rapports avec la Musique par M. F. de Fenis. Bull. Institut General Psychologique July-December, 1917, pp. 87-130. Paris, at the Office of the Society, 143 Boulevard St. Michel.

Dwight on a New Gull.¹—In an examination of a series of upwards of fifty specimens of the Western Gull (*Larus occidentalis*) Dr. Dwight shows that the species is clearly divisible into two races, the typical bird of Audubon ranging south at least to Trinidad, California, and a darker mantled form with less gray on the primaries, ranging along both coasts of Lower California north to the Farallon Islands. This latter race Dr. Dwight describes as *Larus occidentalis livens* (p. 11).—W. S.

McAtee on the Food Habits of the Mallard Ducks.—The latest 'Bulletin' issuing from Biological Survey treats of the food of the Mallard and Black Ducks.² A very large amount of data is presented showing what a great variety of animal and vegetable species go to make up the bill of fare of these birds.

Ninety per cent of the Mallard's food we learn consists of vegetable matter, more than a third of which is made up of the seeds, roots, leaves and tubers of sedges and grasses, and about a fifth, of similar portions of smart-weeds and pond weeds. Of the ten per cent of animal matter mollusks contribute 5.73 and insects 2.67.

The food of the Black Duck differs materially from that of the Mallard, largely owing to its frequenting the salt marshes and bays along the coast. Only about three fourths of its food is vegetable and fully half of this consists of pond weeds and other submerged plants. Half of the animal food is composed of mollusks, the edible mussel being the favorite, while crustacea furnish eight per cent.

The Southern Black Duck (*Anas fulvigula*) living in a region where the food supply is not affected by cold winters, feeds more largely upon animal matter, forty per cent of its food being of this nature, the greater portion consisting of mollusks. Its vegetable food is largely grasses and smart-weeds.

This report is of especial interest on account of the extensive propagation of these ducks in a semi-domesticated condition and it is another illustration of the thoroughness of Mr. McAtee's researches along these lines. A half-tone plate of the Mallard and Black Duck from a drawing by Fuertes illustrates the pamphlet. In connection with duck food attention should be called to a recent note by Mr. Alex. Wetmore³ on lead poisoning among water fowl, in which he states that the shot gathered up by ducks in the neighborhood of shooting stands proves fatal to many individuals. It is ground up in the stomachs by the pebbles therein contained and causes severe diarrhoea followed by slow paralysis. By experiment it was found that six number six shot, when swallowed, were fatal in every case.—W. S.

¹ Description of a New Race of the Western Gull. By Jonathan Dwight, M. D. Proc. Biol. Soc. Washington, Vol. 32, pp. 11-13. February 14, 1919.

² Food Habits of the Mallard Ducks of the United States. By W. L. McAtee, U. S. Dept. of Agriculture, Bulletin No. 720, pp. 1-35 and one plate. December 23, 1918.

³ Journal Washington Acad. Sci., Vol. VIII, No. 11, pp. 375-376, June 4, 1918.

Stone on Birds of the Canal Zone.— In 'The Auk' for 1913, pp. 422-429, there was published a list of North American birds observed in the Panama Canal Zone by Lindsey L. Jewel. Mr. Jewel died before he was able to prepare a report on the main portion of his collection. His birds later became the property of the Academy of Natural Sciences of Philadelphia and have been identified by Dr. Stone, who has reported upon them in the present paper.¹ In order to make the list of more general use he has added the names of all other species which had been reported from the Zone by previous writers. The list therefore includes 432 species of which 236 are represented in Mr. Jewel's collection.

An introduction calls attention to the collections which had been made in the Zone in previous years, while the list proper contains numerous field notes on the various birds, taken from Mr. Jewel's manuscript memoranda, including accounts of the nest and eggs of a number of species. The South American Swift *Chatura chapmani* Hellmayr, is recorded from the isthmus for the first time on the basis of two specimens secured at Gatun, July 9, 1911, while the capture of a specimen of *Stelgidopteryx serripennis* (Aud.) Gatun, December 18, 1910, would seem to extend its range somewhat to at the southward.

Under the note on Reiffer's Hummingbird, Dr. Stone presents reasons for reverting to the name *Amazilia* for this and other species recently called *Amizilis* and designates *Ornismia cinnamomea* Less, as the type of the former genus. Besides containing much original data the paper will be a convenient hand list for future students of Panama bird life.—S. T.

Shufeldt on the Young Hoatzin.— Dr. Shufeldt² has studied the skeleton and pterylosis of some young Hoatzins submitted to him by Mr. Robert C. Murphy. While his observations seem simply to confirm those of previous writers he has presented some good photographs of both the external appearance of the young bird and the skeleton and has compiled a useful bibliography of papers relating to this interesting species.—W. S.

Riley on Celebes Birds.— In studying a collection of Celebes birds obtained by Mr. H. C. Raven in the north peninsula and the mountains of the middle part of the Island, and presented to the National Museum by Dr. W. L. Abbott, Mr. Riley³ found a number of new forms which are described in the present paper in advance of the complete catalogue of the collection.

¹ Birds of the Panama Canal Zone, with Special Reference to a Collection Made by Mr. Lindsey L. Jewel. By Witmer Stone. Proc. Acad. Nat. Sciences Philadelphia, 1918, pp. 239-280, November 30, 1918.

² Notes on the Osteology of the Young of the Hoatzin (*Opisthocomus cristatus*) and other Points on its Morphology. By R. W. Shufeldt. Jour. of Morphology, Vol. 31, No. 3, December, 1918, pp. 599-606, plates 1-4.

³ Two New Genera and eight New Birds from Celebes. By J. H. Riley. Proc. Biol. Soc. Washington, Vol. 31, pp. 155-159, December 30, 1918.

A Thickhead apparently allied to *Pachycephala* is regarded as representing a new genus is described as *Coracornis raveni* (p. 157), while a Cuckoo Shrike related to *Malindangia* of the Philippines also becomes the type of a new genus and is named *Celebesia abbotti* (p. 158). The other new forms are, *Caprimulgus affinis propinquus* (p. 155); *Collocalia vestita aenigma* (p. 156); *Rhamphococcyx centralis* (p. 156); *Lophozosterops striaticeps* (p. 157); *Calaponega abditiva* (p. 158); and *Cryptolopha nesophila* (p. 158).—W. S.

Oberholser's 'Mutanda Ornithologica V.'—This¹ is the fifth of a series of papers which Dr. Oberholser has been issuing calling attention to necessary changes in the nomenclature of birds in various parts of the world. The species here treated are all Woodpeckers. *Yungipicus pygmaeus* (Vig.) he shows must hereafter be known as *Yungipicus mitchellii* (Mahl.), the specific name being preoccupied and the generic name not following the original spelling. *I. auritus* (Eyton) becomes *Y. moluccensis* (Gmel.), the latter specific name being earlier. *Dendropicos minutus* (Temm.) is preoccupied and is renamed *D. elachus* (p. 8) while *Campethera punctata* (Valencien.) becomes *C. punctuligera* (Wagl.), for the same reason. *Gecinus striolatus* (Blyth) is in like case and becomes *Picus xanthopygius* (Bonap.), *Gecinus* giving way to *Picus* as explained by Hartert (Vogel Palaarkt. Fauna VII p. 889).—W. S.

Miller's 'Birds of Lewiston-Auburn and Vicinity.'—Well prepared local lists have a very definite value and when they are prepared in a way to help the bird student their value is doubled. Such a list is Miss Miller's well printed brochure on the birds of Lewiston-Auburn, Maine.² It consists of notes on 161 species which have been observed in recent times in the region covered, together with 40 additional species of water birds seen by others in the vicinity. Not only is the nature of the occurrence and relative abundance of each species in the main list given, but there are interesting accounts of their habits from personal observation and appropriate quotations from standard works and popular writings on nature, which make the text attractive and readable. Preliminary pages treat of the bird-life of the four seasons and there are some supplementary suggestions to bird students and a table of migrants in the order of their spring arrival. The dedication is to Prof. J. Y. Stanton at whose suggestion the list was prepared and who "was the author's inspiration in all her bird study." His death occurred while the work was in press and the addition of the portraits makes it in a measure a memorial to him. We might call attention to the fact that this excellent list does not contain a

¹ *Mutanda Ornithologica V.* By Harry C. Oberholser. Proc. Biol. Soc. Washington, Vol. 32, pp. 7-8, February 14, 1919.

² *Birds of Lewiston-Auburn and Vicinity*, by Carrie Ella Miller. With an Introduction by Professor J. Y. Stanton. Lewiston Journal Co., Lewiston, Maine [Spring, 1918], pp. 1-80 and two portraits of Prof. Stanton. Papers cover 50 cts., cloth \$1.

scientific name except in a reference to the origin of the domestic pigeon. The A. O. U. numbers are given in parentheses and the A. O. U. vernacular names are used with the addition of others when necessary. Thus is a matter that seems to trouble many bird students, easily disposed of! If the use of scientific names were limited to scientific publications there would be far less criticism of the changes in them. Miss Miller's little book is an excellent model for a present day local list for the use of the amateur bird student who wishes a reliable and helpful hand book.—W. S.

Recent Papers by Bangs.—In 'The Auk' 1918, p. 441, Mr. Arthur T. Wayne states that on two occasions he saw Black-throated Green Warblers, in the maritime region of South Carolina, building a nest and carrying nesting materials during April. Mr. Bangs¹ now describes one of these April birds as a new subspecies and states that Mr. Wayne sent him a series of seven specimens all of which differed from northern birds in the same way—*i. e.*, in duller coloration and smaller bill. The new form is named *D. virens waynei* (p. 94). In another paper² he discusses the species of the genus *Paecilonitta* as it is now to be spelled, following the original publication. He recognizes *P. bahamensis bahamensis* (Linn.), Florida to Brazil; *P. b. rubrirostris* (Vieill.), from southern South America; *P. galapagensis* Ridgw., Galapagos Is.; *P. spinicauda* (Vieill.) southern South America; and *P. erythrorhyncha* (Gmel.), Madagascar and Africa.

Peles (p. 92) is proposed³ by Mr. Bangs as a new genus for *Caprimulgus binotatus* Bp.—A review of the South American Short-eared Owls⁴ leads him to recognize three neotropical races. These are *Asio f. brevicaudus* (Schlegel) from southern South America; *A. f. bogotensis* Chapman, from the Bogota Savanna, and *A. f. sanfordi* (p. 97) subsp. nov., from the Falkland Islands.

Another paper⁵ deals with the races of *Dendroica vitellina* Cory, and a new form is described from Swan Island which Mr. Bangs names *D. v. nelsoni* (p. 494). It is somewhat intermediate between the other forms—the typical race of Grand Cayman and *D. v. crawfordi* Nicoll, from Little Cayman and Cayman Brac.—W. S.

Economic Ornithology in Recent Entomological Publications.—Items pertaining to this subject continue to accumulate slowly. Those on hand pertain to the following insects:

¹ A New Race of the Black-throated Wood Warbler. By Outram Bangs. Proc. N. E. Zool. Club., Vol. VI, pp. 93-94, October 31, 1918.

² Notes on the Species and Subspecies of *Paecilonitta* Eyton. By Outram Bangs. *Ibid.*, pp. 87-89. October 31, 1918.

³ A New Genus of Caprimulgidae. By Outram Bangs. *Ibid.*, pp. 91-92. October 31, 1918.

⁴ Notes on South American Short-eared Owls. By Outram Bangs. *Ibid.*, pp. 95-98. February 8, 1919.

⁵ The Races of *Dendroica vitellina* Cory. By Outram Bangs. Bull. Mus. Compar. Zool. Vol. LXII, No. 11, pp. 493-495. January, 1919.

Larch bark-beetles and borers.— In a general account of insects affecting the larch in Erie County, N. Y., is the following interesting information, relating to the work of woodpeckers.¹

"The work of woodpeckers is much in evidence and seems to be an efficient agency in reducing to some extent the numbers of the brood of several of the more numerous bark-boring insects. The birds seem to work in two ways — first by making small conical holes through the bark into the sapwood to obtain the larvæ of the larger species of beetles which have gone there to hibernate or to pupate, and secondly by removing practically all of the bark on large areas of the trunk to uncover the brood (larvæ, pupæ and young adults) of the bark beetles.

"In some cases this work reached an unusual degree of efficiency. For instance one particular tree forty or fifty feet high and about 14 inches in diameter, had had nearly all of the bark removed from the ground to the very tip. This tree had been heavily infested with *Dendroctonus simplex*, *Polygraphus rufipennis* and other borers, but only a small per cent of the original infestation had survived the woodpeckers' thorough search for food. Of course all of the infested trees had not been so thoroughly gone over by the birds and a number of such trees had apparently not been found by them at all. However, it is safe to say that the woodpeckers were an efficient force, working toward the return of the normal balance of nature which had been upset by the breeding of certain species of insects above the danger level, due to the girdling, season after season, of a number of the larches by farmers. It is not believed that the woodpeckers will be able unaided to reduce the numbers below the danger level, as long as more trees are girdled each year, but should this practice cease it is possible that they would be able eventually to obtain the upper hand and that conditions would return to normal."

Lepidopterous root-borers.— The grape root-borer (*Memythus politiformis*) for which no parasites are known was seen to be eaten in the adult stage by the Crested Flycatcher (*Myiarchus crinitus*).² Two other Flycatchers, the Kingbird and Phoebe, are recorded as enemies of both the greater and lesser peach-tree borers (*Sannenoidea exitiosa* and *Synanthedon pictipes*).³ All of these insects are not only seriously destructive, but from their secluded habits in the larval stage, have few parasite enemies and are difficult to control by man. They belong to a family of moths all of which in the adult condition more or less closely mimic wasps and other hymenoptera and which have been supposed, probably mistakenly, to derive some advantage from this resemblance, in the way of immunity from predatory enemies.

Cankerworms.— An investigation of the relation of birds to canker-

¹ Blackman, M. W. and Stage, Harry H. Tech. Publ. No. 10, N. Y. State College of Forestry, May, 1918, pp. 16-17.

² Brooks, L. E. Bull. 730, U. S. Dept. Agr., Dec. 24, 1918, p. 27.

³ Gosnard, H. A. and King, J. L., Bull. 329, Ohio Agr. Exp. Sta. Sept., 1918, p. 70.

worms near Lawrence, Kansas, has had the same result as those made by several previous students, among whom were Riley, Forbes and Forbush. The following summary of the matter is quoted and abstracted from a report¹ by Mr. Walter H. Wellhouse.

"Next to unfavorable weather, the birds are the most important natural enemies of the cankerworms. Probably no insect is a favorite food of more species of birds than the cankerworm larva. It lives exposed on the outside of twigs and leaves where the birds can easily secure it, and is without distasteful hairs or spines on its integument. The English Sparrow, which is said to have been imported into America to check the ravages of this insect, is no doubt our most efficient cankerworm eater in the cities. We have watched these much-despised birds picking larvæ from the elms at all hours of the day from early morning to twilight, and even during rains. The Robin is also an efficient destroyer of cankerworms, especially of the moths which are found at the base of the tree. The writer has seen flocks of Bronzed Grackles alight in the tall elms in Lawrence, and, moving from branch to branch, noisily devour great numbers of larvæ. Having exhausted the supply on one tree they moved in concert to another tree to continue the feast.

"Many of the more timid birds which are not found in the cities so commonly as the English Sparrow and Robin are just as efficient enemies in the country.

"Mr. C. D. Bunker, curator of mammals in the Dyche Museum, secured a hundred birds from a grove four miles from Lawrence and carefully estimated the percentage of cankerworm larvæ found in their stomachs. They were taken near the edge of the timber where they could easily have returned from the surrounding fields with other food, and the grove is composed of several species of trees, only a small per cent being elms infested with cankerworms."

The hundred bird stomachs reported upon represent 39 species of birds, all but three of which had eaten cankerworms. Eighteen of the species had at least one individual which had eaten 100% cankerworms. Including birds previously mentioned in the literature as enemies of cankerworms the list now totals 75 species.

White Grubs.—Mr. Norman Criddle has an extremely interesting note on the bird enemies of white grubs (larvæ of *Phyllophaga* spp.) in a recent article² on these pests in Manitoba. He notes that

"Robins are eager seekers after White Grubs, and have been known to frequent infested fields for weeks. Crows, apart from their habit of following the plough, are also very useful as grub searchers; the same may be said of Flickers."

The following extract contains a specific recommendation that farm

¹ Bull. Univ. Kans. Vol. 18, No. 1, Oct., 1917, pp. 301-302, Wellhouse, Walter H.

² Agr. Gaz. Can. Vol. 5, No. 5, May, 1918, pp. 449-454.

practice be planned chiefly with a view of best utilizing the services of birds in destroying white grubs; a remarkable tribute to the effectiveness of practical economic ornithology:

"Birds are most persistent followers of the plough during their breeding season or while migrating; gulls and terns from May 16th to June 22d, and for a short time late in July; crows and blackbirds, including grackles, from the time grubs appear in May until July 1st.

"From the foregoing we reach the conclusion that to attain the best possible results under conditions existing in Manitoba, ploughing should be done between May 14th and July 1st, and at an average depth of five inches. The idea is, of course, to turn up as many grubs, eggs, or pupæ as possible, a majority of which will, in all probability, be picked up by birds. Many eggs will be destroyed by the plough alone, but it is advisable to harrow as soon as possible after ploughing, as by this means numerous egg cells will be broken, causing a large percentage of deaths among the eggs and newly-hatched young, besides exposing them to attack by birds. Exposed pupæ will also be destroyed by this method.

"So far as the interests of farming is concerned, it will be observed that the above recommendations do not in any way clash with the best cultural methods. There is good reason for believing, too, that they will prove of value in the destruction of wireworms.

"With reference to the large part birds are expected to play in this work, it may be claimed that birds are not always present in sufficient numbers, and that their capacity is, after all, limited. Granting this to be true in certain districts, we must remember that white grubs are only found within comparatively close range of trees, and that their principal habitats coincide with the haunts of Crows, the most persistent of all plough followers. Thus, if there are no Crows present the farmer and sportsman are probably largely to blame, and the question then resolves itself into the economic one as to which does most harm, the Crows or the white grubs. We do not think there can be much doubt on this point in grub-infested localities. The writer has personally seen fully ninety per cent of white grubs exposed picked up by Crows when he was himself the ploughman.

"Blackbirds are more dependent upon water than Crows, hence are not so evenly distributed, but when present prove very efficient grub destroyers. Cowbirds (*Molothrus ater*) are also extremely useful in this respect, and probably largely compensate for their parasitic habits by this means." — W. L. M.

The Ornithological Journals.

Bird-Lore. XXI, No. 1. January-February, 1919.

When the North Wind Blows. By A. A. Allen.—Excellent photographs of winter birds and account of the actions of the White-breasted Nuthatch.

Our Responsibility. By Mabel Osgood Wright.— Another admirable account of winter bird life, in Connecticut.

Notes from a Traveller in the Tropics. Cuba to Panama. By Frank M. Chapman.

An Evening with Birds in Florida. By J. W. Lippincott.

The Great Horned Owl. By F. N. Whitman.— Account of nest and young.

Under 'Migration and Plumages of North American Birds' the Ravens are considered, and there is the usual large collection of Christmas lists.

The Condor. XX, No. 6. November–December, 1918.

Nesting of the Rocky Mountain Jay. By W. C. Bradbury.— A valuable account with numerous illustrations of the bird, its nest, eggs, and haunts.

Description of a new *Lanius* from Lower California. By Harry C. Oberholser.— *Lanius ludovicianus nelsoni* (p. 209), Todos Santos.

Mr. P. A. Taverner has a letter explaining his practice of employing only binomial nomenclature until the necessary specimens and comparisons are available to ensure beyond a doubt to which race the bird in question belongs (see beyond p. 316).

The Condor. XXI, No. 1. January–February, 1919.

A Return to the Dakota Lake Region. By Florence Merriam Bailey.— A continuation of this delightful article.

The Solitaires of Shasta. By W. Leon Dawson.— Good account of the bird and its nesting, with illustrations from photographs.

Nesting of the Short-eared Owl in Western Washington. By E. A. Kitchin.— Good illustrations of nest and young.

Problem: Do Birds Mate for Life? By J. Eugene Law.— The same suggestion is made, among others, as is offered in 'The Auk,' p. 138, in comment on a paper of similar title by F. C. Willard. A further extended comment on the same paper follows Mr. Law's, which is by N. K. Carpenter and supports Mr. Willard, although the evidence except in one instance is no more convincing than was his.

Parasitism of Nestling Birds by Fly Larvæ. By O. E. Plath.— This is a valuable account of the same parasites referred to in a letter of Dr. W. W. Arnold in 'The Auk' for January, 1919, p. 147, giving a much fuller history of the insect.

Wilson Bulletin. XXX, No. 4. December, 1918.

Finding the Nest of the Knot. By W. Elmer Erklaw.— On the Crocker Land Expedition, in 1916. Eggs now in the American Museum of Natural History.

Migration Records for Kansas Birds. By Bessie P. Douthitt.— This instalment covers the water birds only. The nomenclature does not follow the A. O. U. List but seems to be a compilation from various authors who have ideas of their own on this subject. The result is rather startling. In the Cranes for instance, the author divides our three species, which everyone has regarded as congeneric, into two groups *Limnogeranus* and

Grus, names which by the way are synonyms. As we have stated before we can see no result but confusion in departing from the generally recognized A. O. U. names in local lists of North American species.

Revisory Notes on the List of the Birds of Nebraska. By Myron W. Swenk.—In this list too we find names which have not been authorized by the A. O. U. 'Check-List.'

The Oölogist. XXXV, No. 12. December, 1918.

Observations on a Family of Winter Wrens. By Alex. D. McGrew.—Data on the feeding of the young, with photographs of the female, at Endeavor, Pa.

The Oölogist. XXXVI, No. 1. January, 1919.

Some Nesting Birds of the Palisades Interstate Park. By P. M. Silloway.

The Ibis. (XI Series), I, No. 1. January, 1919.

Notes on Collections of Birds in the British Museum, from Ecuador, Peru, Bolivia, and Argentina. Part I. Tinamidae—Rallidae. By Charles Chubb.—This report covers collections made by Perry O. Simonds in the countries mentioned which have been presented to the Museum by Mr. Oldfield Thomas; as well as the Goodfellow Ecuador Collection and one made by the late Lord Brabourne in northwestern Peru.

The following new forms are described. *Crypturus garleppi affinis* (p. 8), Rio Blanca, Bolivia; *Chamaepetes goudotii antioquiensis* (p. 22), Valdivia, Antioquia, Colombia; *Odontophorus guianensis simonsi* (p. 26), San Ernesto, Mapi, Bolivia; *O. g. panamensis* (p. 26), Panama; *O. g. buckleyi* (p. 27), Sarayacu, eastern Ecuador; *Zenaida auriculata noronha* (p. 36), Fernando Noronha Island; *Leptoptila verreauxi brevipennis* (p. 45), Trinidad; *Pardirallus rityrhynchus tschudii* (p. 50), Junin, central Peru; *Aramides cajanea grahami* (p. 53); Para.

Birds from the North of France. By Capt. A. W. Boyd.—An annotated list covering a year's service in the British Army in the departments of Pas de Calais, Somme and Nord.

On One of the Four Original Pictures from Life of the Reunion or White Dodo. By Lord Rothschild.—An interesting historical sketch with reproduction of the picture.

A Note on Capt. Beebe's Monograph of the Pheasants. By H. J. Elwes.—A tribute to the work, with some important criticism on the value of certain races there recognized.

On the Eclipse Plumage of *Sporophila pileata*. By F. E. Blaauw.—Has distinct winter and summer plumages.

List of the Birds of the Canary Islands, with Detailed Reference to the Migratory Species and the Accidental Visitors.—Part I. Corvidae—Sylviidae. By David A. Bannerman.—This is a remarkably complete treatment of the subject, the author having made an exhaustive study of the literature and taken a number of trips to the islands. The present publication is preliminary to a proposed book on the subject.

In the reviews the editor of 'The Ibis' honors us by crediting 'The Auk' with some 300 more pages than actually appeared in the 1918 volume; we

hope however that ere long we may be able to live up to his generous allowance!

Bulletin of the British Ornithologists' Club. CCXXXVII. November 30, 1918.

This number contains the annual review of ornithological activities by the Chairman, Mr. W. L. Sclater.

There are also descriptions of a number of new species, as follows: By W. L. Sclater; *Buteo jakal archeri* (p. 17), Waghar, Somaliland. By E. C. Stuart Baker; *Bhringa remifer peracensis* (p. 18), Telom, Malay Peninsula; *Picus canus gyldenstolpei* (p. 19); Sadiya, Assam; *Thereiceryx lineatus intermedius* (p. 19), Pahpoon, Burmah; *Cyanops dwaceli robinsoni* (p. 20), Klang, Malay Peninsula; *Pitta cerulea hosei* (p. 20), Mt. Dulit, Borneo. By Dr. Hartert; *Corvus rhipidurus* as a substitute for *Corvus affinis* Ruppell (p. 210). By Charles Chubb; *Gampsonyx swainsonii magnus* (p. 21), Amotape, Peru; *G. s. leonæ* (p. 22), Leon, Nicaragua; *Falco ruficularis petoensis* (p. 22), Peto, Yucatan; *F. r. pax* (p. 22), Charu-playa, Bolivia. By G. M. Mathews; *Diomedea exulans westralis* (p. 23), W. Australia, off Albany; *Acanthiza pusilla peroni* (p. 23), Peron Peninsula, Australia; *Leggeornis lamberti hartogi* (p. 24), Dirk Hartog Island, Australia; *Urodynamis tailensis belli* (p. 24); Norfolk Island.

Bulletin of the British Ornithologists' Club. CCXXXVIII. January 3, 1919.

Mr. Chas. Oldham gave an extended account of the breeding of the Black-necked Grebe (*Podiceps nigricollis*).

Mr. E. C. Stuart Baker discusses the races of *Alcedo meninting* of which he recognizes six. *A. m. collarti* (p. 39), from Saddya, Assam and *A. m. scintillans* (p. 38), Bankasoon, are described as new.

Dr. Hartert proposed *Aegithalos caudatus pyrenaicus* for a new race recently described in 'Novitates Zoologicae' but inadvertently not named.

Mr. Chas. Chubb described: *Sclerurus mexicanus certus* (p. 41) Guatemala, Volcan de Agua; *S. m. macconnelli* (p. 41), Ituribisi River, British Guiana; *S. m. peruvianus* (p. 41), Yurimaguas, east Peru; *S. m. bahia* (p. 42), Bahia, Brazil; and the new genus *Poliolæma* (p. 42), for *Myrmotherula cinereiventris* (Scl. & Salv.).

Bulletin of the British Ornithologists' Club. CCXXXIX. January 29, 1919.

Mr. Stuart Baker described as new, *Penthoceryx sonnerati waiti* (p. 47), Ceylon. Dr. Hartert; *Serinus buechanani* (p. 50), Maktan, East Africa. Mr. Chas. Chubb; *Dendrocincla bartletti* (p. 50), Chamicuros, east Peru; *D. fuliginosa wallacei* (p. 52), Para, Brazil; *Xenops genibarbis cayoensis* (p. 52), Cayo, British Honduras.

British Birds. XII, No. 7. December, 1918.

The Moults and Sequence of Plumages of the British Waders. By Annie C. Jackson.—Northern Phalarope, Stilt, Ayocet and Godwit. Concluded in the next number, which contains the Curlew, Snipe and Woodchuck.

Avicultural Magazine. X, No. 3. January, 1919.

Colour Change in the Plumage of Birds. By Dr. V. G. L. Van Someren. — A most important reply to a paper by Dr. A. G. Butler which claimed color change in a Weaver Bird (*Pyromelana*) and referred to *Turacus* as a good illustration of the passing of pigment up the vanes of fully formed feathers. The author states that numerous experiments with the crimson feathers of the latter genus from both skins and living birds failed to show any loss of color. Similar experiments in the Philadelphia Zoological Garden, it might be added, resulted in the same way. In regard to the Weaver, all Dr. Van Someren's birds effected the change by molt as might be expected, and they ate many of the feathers which accounts for the lack of cast feathers in many accounts of supposed color change. These observations should settle this vexed question.

Avicultural Magazine. X, No. 2. December, 1918.

The Pigeons of the Gambia. By E. Hopkinson.

The Emu. XVIII, Part III. January, 1919.

Haunts of the Letter-winged Kite (*Elanus scriptus* Gould). By Sidney W. Jackson.

An interesting account of a trip through Western Queensland with a list of the birds observed. Illustrations of the nest, eggs and young of the Kite.

Notes on Birds from the Gouldian-Gilbert Type Locality, North Australia. By A. J. Campbell. — This paper is an account of a collection made by Wm. McLennan near Port Essington, the spot where Gilbert collected so many of the birds described by Gould. In commenting on the type localities quoted by Mr. Mathews, the author calls attention to the fact that they do not always agree with those given by Gould in his original descriptions, in the 'Proceedings' of the Zoological Society. Mr. Campbell would do well to consult the paper prepared by Mr. Mathews and the editor of 'The Auk.' (Austral Avian Record, Vol. I, No. 6-7), in which the history of the Gould collection is given and individual specimens selected as the types. The collection is not at Washington, as Mr. Campbell supposes, but at Philadelphia, in the museum of the Academy of Natural Sciences, where it has been ever since it left Europe. The fact that Gould described a few birds from the north-west coast of Australia, before Gilbert reached Pt. Essington, as stated by Mr. Campbell, is interesting and would seem to indicate that the latter should not be quoted as the type locality. In such cases, when all the specimens were labelled Pt. Essington, we selected one of them as the type, as it seemed likely that the labelling might be inaccurate and no other possible types seemed to be in existence.

Four Ornithological Trips to the Nullabor Plains. By Capt. S. A. White. — An interesting account of travel in this region with many illustrations.

Revue Française d'Ornithologie. X., No. 114. October 7, 1918. [In French.]

Contribution to a Study of the Storm Petrels of the Mediterranean. By L. Lauden.

Researches on the Group of *Saxicola aurita* and *S. stapazina*. By M. Bede (concluded in the next number).

Study of a Collection of Birds made by M. E. Wagner in the Province of Misiones, Argentina. By A. Menegaux (continued in the next number).

Revue Française d'Ornithologie. X., No. 115. November 7, 1918.

Two Character Indices and Differentials of the Passeres, Waders and Gallinaceous Birds. By Maurice Boubier.—Comparisons of the relative length of the first and middle digits, and between the length and breadth of the bill.

The December number consists of an index to the volume.

Ornithological Articles in Other Journals.

Oberholser, H. C. Description of a New *Iole* from the Anumba Islands. (Proc. Biol. Soc. Washington XXXI, December 30, 1918.—*I. olivacea crypta* (p. 197).

Oberholser, H. C. Status of the Genus *Orchilus*. Cabanis. (*Ibid.*)—*Nothorchilus*, gen. nov. (p. 204) type *Platyrhynchus auricularis* Vieill.

Hartert, Ernst. Notes on Starlings. (Novitates Zoöl., XXV, No. 2, November, 1918.)—A review of the races of *Sturnus vulgaris*, of which 19 are recognized, *S. v. zelandicus* (p. 329) North Yell, Shetland Isls., is described as new.

Hartert, Ernst and Goodson, A. T. Notes on Pigeons. (*Ibid.*)—Revisions of various species. The following new forms are proposed: *Ptilinopus rivoli buruanus* (p. 347), Buru; *Treron calva poensis* (p. 350), Fernando Po; *T. c. brevicera* (p. 353), Moschi, E. Africa; *T. c. sejuncta* (p. 353), Portuguese Guinea; *T. curvirostra hainana* (p. 356), Hainan; *Geopelia maugeus audacis* (p. 358) Tenimber.

Hartert, Ernst. Some Nomenclatorial Notes. (*Ibid.*)—Reference to Navás' 'Ornithologia de Aragón (1907)' and new names proposed therein. Also the following changes. *Corvus affinis* Rupp. becomes *C. brachyrhynchus* Brehm; *Oriolus melanocephalus* L. 1766 becomes *O. luteolus* (L.) 1758; *Muscicapa grisola* (L.) becomes *M. striata* (Pall.); *Carpophaga* becomes *Muscadivora* Schl., *Muscdivores* Gray being rejected. There is finally a strong protest against changing names on the basis of one letter (or other slight) difference.

Hartert, Ernst. A New Race of Long-tailed Titmouse. (*Ibid.*)—Pyrenees form described but not named (see *antea* p. 310).

Hartert, Ernst. *Garrulus bispecularis* and its allies with List of all Forms of *Garrulus*. (*Ibid.*)—*G. b. persaturatus* (p. 430) Khasia Hills, *G. b. interstinctus* Darjiling.

Hartert, Ernst. Further Notes on Pigeons. (*Ibid.*)—*Phlegenas crinigera basilanica* (p. 434), Basilan; *P. c. leyensis* (p. 434), Leyte.

Wait, W. E. Notes on Ceylon Water Birds. Part II. (*Spolia Zeylanica*, X, Part 39.) October, 1917.

- Wait, W. E.** Rough Draft of Ceylon Pigeons and Game Birds. (*Ibid.*)
- Oberholser, H. C.** Spizixidæ, a new Family of Pycnonotine Passeriformes. (Jour. Washington Acad. Sciences, IX. January 4, 1919.)—Spizixidæ (p. 14) also *Cophixus* gen. nov. type *Spizixus semitorquus* (p. 15).
- Iverson, L.** Moth. An Essay Comparing some Mammals and Birds of North Central Europe with Related Species native in Northern United States. (Trans. Utah Acad. Sci., I, 1918.)—A rather unfortunate effort, as the vernacular names used for American species sometimes leave one in doubt as to what bird the author has in mind; the Coots of the two countries are said to be quite differently colored!
- Anonymous.** Protection of Insect-eating Birds in St. Vincent [West Indies]. (The Agricultural News, XVIII, January, 1919.)
- Slonaker, J. R.** A Physiological Study of the Anatomy of the Eye and its Accessory Parts, of the English Sparrow (*Passer domesticus*). (Jour. of Morphology, XXXI, pp. 351-434, 1918.)
- Johnson, C. E.** The Origin of the Ultimobranchial Body and its Relation to the Fifth Pouch in Birds. (*Ibid.*, pp. 583-592.)
- Robinson, Herbert C.** Two Abnormal Specimens of Ducks in the Collection of the Zoological Survey of India. (Records of the Indian Museum, XV, pp. 41-48, 1918.)—*Eunetta falcata* × *Chaulelasmus streperus*; and *Anas boschas* × *Querquedula crecca*.
- Philpott, Alfred.** Notes on Certain Introduced Birds in South-land (New Zealand). (The New Zealand Jour. of Sci., I, No. 6, 1918.)—Twelve species of English birds have been introduced, many of these have increased and spread widely while others have not.
- White, S. A.** Results of the South Australian Museum Expedition to Strzelecki and Cooper Creeks, September and October, 1916. (Trans. and Proc. Royal Soc. South Australia, XLI, pp. 441-466, 1917.)
- Van Sommeren, V. G. L.** *Pitta angolensis longipennis* (Reichenow). (Jour. East African-Uganda Nat. Hist. Soc. No. 18, pp. 279-280.)
- Lletget, Augusto Gil.** Two New Passeres from the Collection of the Pacific Expedition. (Bol. Real. Soc. Espan. Hist. Nat., XVIII, No. 7-8, pp. 340-341.)—*Icterus xantholemus* (p. 340), Ecuador, and *Cercomacra tyrannina atrogularis* (p. 341); the *Icterus* is not compared with other forms. [In Spanish.]
- San Martin, Julio.** On the Turkey Vulture. (Mem. Soc. Cubana, Hist. Nat. Felipe Poey, II, pp. 29-38.) 1916. [In Spanish.]
- Sanches, y Roig, Mario.** The Naturalist William S. MacLeay. (*Ibid.*, pp. 73-78.) [In Spanish]
- Ramsden, C. T.** Life and Zoological Explorations of Dr. Juan Gundlach in Cuba. (*Ibid.*, III, pp. 146-168.) [In Spanish.]
- Ramsden, C. T.** The Turkey Vulture (*Cathartes aura*). Results of Experiments Concerning the Transmission of Disease through their Digestive Organs (*Ibid.*, pp. 174-178) [In Spanish.]
- Rodriguez y Toralbas, Victor J.** A New Species for the Ornithology

Cuba. (*Ibid.*, pp. 22, 223-224.) Cinnamon Teal, (*Querquedula cyanoptera*.) [In Spanish.]

Heikertinger, Franz. An Attempt to Solve the Problem: How can the Native Country and Geographic Distribution of a Species be Indicated through a brief addition to its Specific Name? (*Zoöl. Anzeiger*, L. pp. 41-54. 1918.) — This paper should prove of interest to students of nomenclature, who find their field of activity narrowing through the gradual settling of the older points of dispute. Without attempting to explain the meaning of the various prefixes and suffixes proposed, we may say that the Puffin, *Fratercula arctica* appears, as "*Dufraterclus oarcticus*." [In German.]

Lebedinsky, N. G. On the Form of the Under Mandible in Birds. (*Ibid.*, pp. 36-31.) [In German.]

Publications Received.—**Bangs**, Outram. (1) Notes on the Species and Subspecies of *Pacilonitta* Eyton. (*Proc. N. E. Zool. Club*, VI, pp. 87-89. October 31, 1918.) (2) A New Genus of Caprimulgidae. (*Ibid.*, pp. 91-92.) (3) A New Race of the Black-throated Green Warbler. (*Ibid.*, pp. 93-94.) (4) Notes on South American Short-eared Owls. (*Ibid.*, pp. 95-98.) (5) The Races of *Dendroica vitellina* Cory. (*Bull. Mus. Comp. Zoöl.*, LXII, No. 11, January, 1919.) (6) Types of *Pachycephala littayei* Layard. (*Ibis*, October, 1918.)

De Fenis, M. F. Contribution a l'Etude des Cris et du Chant des Oiseaux dans ses Rapports avec la Musique. (*Bull. l'Inst. Gen. Psychologique*. Juliet-Decembre, 1917, pp. 87-130.)

Dwight, Jonathan. Description of a New Race of the Western Gull. (*Proc. Biol. Soc. Wash.*, 32, pp. 11-14, February 14, 1919.)

Grinnell, Joseph, **Bryant**, H. C., and **Storer**, Tracy L. The Game Birds of California. University of California Press, Berkeley, 1918. Large 8vo, pp. i-x + 1-642, 16 colored plates, 94 text figures. Cloth, \$6.00 net.

McAtee, W. L. Food Habits of the Mallard Ducks of the United States. (*Bull. 720 U. S. Dept. Agric.*, pp. 1-35, December 23, 1918.)

Mathews, Gregory M. The Birds of Australia, VII, Pt. IV, December 19, 1918.

Miller, Carrie Ella. Birds of Lewiston-Auburn and Vicinity. Pp. 1-80, Lewiston Journal Co., Lewiston, Maine. Price 50 cents paper, \$1.00 cloth.

Oberholser, H. C. Mutanda Ornithologica, V. (*Proc. Biol. Soc. Wash.*, 32, pp. 7-8, February 14, 1919.)

Riley, J. H. Two New Genera and Eight New Birds from Celebes. (*Ibid.*, 31, pp. 155-160, December 30, 1918.)

Shufeldt, R. W. Notes on the Osteology of the Young of the Hoatzin (*Opisthocomus cristatus*) and Other Points on its Morphology. (*Journ. Morphology*, 31, No. 3, December, 1918.)

Stone, Witmer. Birds of the Panama Canal Zone, with Special Reference to a Collection made by Mr. Lindsey L. Jewel. (*Proc. Acad. Nat. Sci. Phila.*, 1918, pp. 239-280, November 30, 1918.)

Wetmore, Alexander. (1) Birds Observed near Minco, Central Oklahoma. (Wilson Bull., March, 1918.) (2) Lead Poisoning in Waterfowl. (Jour. Wash. Acad. Sci., VIII, No. 11, June 4, 1918.)

Zimmer, John T. A Few Rare Birds from Luzon, Mindanao and Mindoro. (Philipp. Jour. of Sci. XIII, No. 5, Sect. D., Sept., 1918.)

American Museum Journal, XVIII, No. 8, December, 1918.

Avicultural Magazine, (3), X, Nos. 2 and 3, December, 1918 and January, 1919.

Bird-Lore, XXI, No. 1, January-February, 1919.

Bird Notes and News, VIII, No. 4, Winter, 1918.

British Birds, XII, Nos. 7 and 8, December, 1918 and January, 1919.

Bulletin American Game Protective Association, 7, No. 4, October, 1918.

Bulletin British Ornithologists' Club, Nos. CCXXXVII-CCXXXIX, November 30, 1918, January 3 and 29, 1919.

Bulletin Charleston Museum, XV, No. 1, January, 1919.

California Fish and Game, V, No. 1, January, 1919.

Condor, The, XX, No. 6, XXI, No. 1, November-December, 1918 and January-February, 1919.

Emu, The, XVIII, Part 3, January, 1919.

Fin, Feathers and Fur, No. 16, December, 1918.

Ibis, The, (11) I, No. 1, January, 1919.

Oölogist, The, XXXV, No. 12, XXXVI, Nos. 1 and 2, December, 1918, January and February, 1919.

Ottawa Naturalist, The, XXXII, Nos. 5 and 6, November and December, 1919.

Proceedings and Transactions Nova Scotia Institute of Science, XIV, Part 3 (August, 1918.)

Revue Française d'Ornithologie, X, Nos. 114-116, October-December, 1918.

Scottish Naturalist, The, Nos. 83 and 84, November and December, 1918.

Wilson, Bulletin, The, XXX, No. 4, December, 1918.

CORRESPONDENCE

IDENTIFICATIONS.

(CHARACTERS VS. GEOGRAPHY).

EDITOR OF 'THE AUK';

We are between two horns of a dilemma. On the one hand, *vide* Dr. Dwight, how can we verify a specimen as subspecies "x" unless it carries the distinguishing marks by which "x" is characterized? Subspecific and other similar distributions must be founded upon observed differences in specimens; to reverse the process and identify specimens geographically without regard to characters neither adds to nor verifies existing knowledge and is reasoning in a vicious circle. It can confirm error but never correct it.

On the other hand, as Dr. Grinnell points out, taxonomic relationship descends genetically. An individual is form "y" because it comes of "y" parentage, not because it happens to show certain peculiarities of form or color. Just as distribution maps must be based upon exhibited characters, so genesis is more fundamental than appearance or form which manifestations may at any time be obscured by atavism, mutation or migration. The very fact that a certain subspecies exists in some part of a specific range is indicative that it is a possible variation in that species and suggests a certain tendency in that direction latent in every individual of that specific form. We can therefore expect, every now and then, to find individuals of pure "x" blood resembling, in varying degree, "y" of the same species. To name such a specimen "y" is as logical as calling a Viceroy butterfly a Monarch because it superficially resembles one. On these points, Dr. Grinnell is as sound as Dr. Dwight is on his.

The flaw in Dr. Grinnell's reasoning is however in his advising the geographical identification of aberrant specimens on the assumption that genetic and geographical relationship are synonymous. Dealing with stationary forms of life, such as plants, proximity of station is only strong presumptive evidence of genetic affinity. With mobile birds such probability is tremendously reduced. With Scissor-tailed Flycatchers from Hudson Bay and Black-capped Petrels from the Mississippi Valley it is evident that community of association is only presumptive of community of descent and that geography is an uncertain guide to identification.

Dr. Grinnell pleads for the exercise of "the judgment based upon experience — just as is needed in any other advanced field of knowledge." No one will quarrel with him over the value of this necessary qualification of decision. The only question is where shall it be used? Is not the first duty of the scientific investigator the elimination of the human equation in the statement of fact? In the deductions drawn therefrom full scope

must be allowed for the genius of skilled intuition but a sharp dividing line must always be drawn between ascertained demonstrable facts and hypotheses.

The truth is, we cannot with absolute certainty identify every specimen we study. Why then deceive ourselves and mislead others by making a bluff at doing the impossible? Why not own up honestly and admit that we cannot name such material? We may state that we think it is so and so and where necessary give reasons for the conclusion, but to pass as fact what is only opinion is not the spirit of modern science. The logical solution of the problem is to name subspecifically only such specimens as are humanly demonstrable and use the binomial for the rest. In other words reverse usual practice and instead of using the trinomial regularly and the binomial on occasion use the binomial generally and the trinomial only where necessity or the facts justify its use.

P. A. TAVERNER.

Museum Geological Survey,
Ottawa, Ont., Dec. 27, 1918.

[While there are some points in favor of Mr. Taverner's plan, which by the way he has put into practice in his article on 'The Birds of the Red Deer River' in this and the preceding numbers of 'The Auk,' there are others which count against it.

First of all we must realize that the practice of duplicating the specific name when referring to the earliest subspecies of a group — i. e. *Melospiza melodia melodia* — is by no means universally adopted, and in very many recent papers and all of those of earlier date the binomial *Melospiza melodia* is used for the first described race and trinomials for the others. Now Mr. Taverner would use this binomial for *some one race* (seen but not positively determined) of *M. melodia*. In the A. O. U. 'Check-List' the same binomial is used to indicate the whole group of subspecies of Song Sparrows collectively. Hence we have three different concepts which we try to denote by one expression. In an index these are hopelessly confused and we are likely to miss valuable information about some form that we are investigating because it is masquerading under some specific name where we would never think of looking for it.

Now as we have in current use a form of name to indicate just what Mr. Taverner has in mind, why not stick to it — i. e. *Melospiza melodia* subsp.? This would avoid all ambiguity. As his practice stands I find it is quite misunderstood, as all of those of whom I inquired, and who had not read Mr. Taverner's published views on the subject, thought that he was simply following Mr. Leverett M. Loomis in abandoning subspecies entirely.

Another difficulty presents itself when we try to follow out Mr. Taverner's plan in the matter of closely related *species*. There are many species that so closely resemble one another that differentiation would be impossible in the field should they happen to occur together. Now Mr. Taverner in

his efforts to avoid every possible mistake refuses to designate the subspecies of the American Magpie because there are European races of the bird which would be indistinguishable from it should they happen to occur here. At the same time he does not hesitate to name the Titlark, *Anthus rubescens*, although he would find it equally difficult to distinguish it from the European *A. spinoletta* — of which indeed Dr. Oberholser considers it a subspecies. So with the Bittern, Solitary Sandpiper, Spotted Sandpiper, etc., etc., which closely resemble species in other parts of the world. Now if it is permissible to "guess" at these *species* why not guess the subspecies also, where we are reasonably certain of them, and use the form I have indicated above in cases where we are on the borderland between races or where winter flocks may contain more than one subspecies?

If we should collect several specimens of a bird that was widely distributed over the region we were exploring it would seem absurd not to infer that all were the same form, and record them as common — though we should really be *absolutely certain* of only the few that had been shot.

As a matter of fact it is possible to make a misidentification in the case of almost any sight record and we also make misidentifications when we have specimens actually in hand, while every reviser of a group has a different opinion as to the disposition of specimens from certain regions. Therefore it should be clear that no system of names will ensure absolute accuracy.

In view of all this why not follow previous custom and make our identifications generic, specific and subspecific where the evidence points with reasonable clearness; using "sp.?" or "subsp.?" where there is a real doubt?

Nomenclature is now bearing about all the burdens it will stand and with the excessive multiplication of genera, the establishment of several different kinds of intergradation, the proposed revision in the forms of names according as they are regarded as adjectives or nouns — it is rapidly weakening both in utility and stability, and ere long we may be in danger of a collapse of the whole cumbersome system!— WITMER STONE.]

NOTES AND NEWS.

DR. FREDERICK DUCANE GODMAN, one of the original Honorary Fellows of the American Ornithologists' Union, a past president of the British Ornithologists' Union and famous as one of the authors of the '*Biologia Centrali Americana*,' died at his home in England on February 19, 1919, aged 85 years.

Dr. Godman was born on January 15, 1834, and was educated at Eton and Trinity College, Cambridge. At college he met Osbert Salvin and the two developed an intimate friendship which was broken only by Salvin's death in 1898. There were other college friends too, all of them interested in ornithology and they used to meet for comparison of notes and specimens. This led to the formation in 1857 in the rooms of Alfred Newton, of the British Ornithologists' Union.

Entomology and Botany also engaged Godman's attention and a trip with Salvin to Jamaica, Belize and Guatemala, in 1861, resulted in the collecting of a large amount of natural history material. They united their collections and began preparations for the great work on the natural history of Central America which has been ever closely associated with their names — the '*Biologia Centrali Americana*,' the first parts of which appeared in 1878. Godman with a corps of expert collectors visited Mexico in 1888 in the interests of this work, while at various times he made trips to different parts of Europe, and North Africa. He published a work on the Azores in which islands he had travelled extensively and was also author of numerous articles in '*The Ibis*' and other scientific journals. During his later life he was more interested in entomology, pursuing extensive studies in the Lepidoptera, but joined with Dr. Bowdler Sharpe in 1907 in getting out a Monograph of the Petrels, a work which his friend Salvin had always had in mind.

Dr. Godman was deeply interested in hunting and fishing and his great diversion from his more serious work was horticulture. He served both as Secretary and President of the B. O. U. and was a trustee of the British Museum. His death leaves but one of the original Honorary Fellows of the A. O. U., Count Salvadori.— W. S.

ROBERT DAY HOYT, a pioneer naturalist and bird collector in Florida, died at his home at Seven Oaks, near Clearwater, Florida, on November 23, 1918. Although never a member of the American Ornithologists' Union, he possessed a wide knowledge of Florida birds and through his collections contributed much to the advancement of ornithology in that State.

Mr. Hoyt was born in New York City, November 18, 1857. When he was about eighteen years of age, his parents moved to Madison, New Jersey. He early developed a love for the outdoors and the living creatures

about him. When still quite young he became acquainted with David Dickenson, of Chatham, New Jersey, and from him learned the art of taxidermy. He then went to Florida on a collecting trip and spent several weeks camping with his father on the St. Johns River, the Oklawaha, and Silver Springs. He continued to visit the State every winter thereafter until 1881, when he moved to Clearwater and bought the place at Seven Oaks where he lived the rest of his life.

He improved every opportunity to collect natural history material and amassed a considerable collection of mounted birds, birds' skins, and birds' eggs, which is now in the Florida State Museum at Gainesville. He was a skilled taxidermist and his services were always in demand for such work. He mounted a large number of birds for Mr. John Lewis Childs, of Floral Park, New York, most of which are now in the Brooklyn (N. Y.) Museum.

Unfortunately, Mr. Hoyt found little time or inclination to publish the results of his observations. Following is a list of the only papers by him known to the writer:

1905. Nesting of the Ivory-billed Woodpecker in Florida (*Campephilus principalis*). The Warbler (2nd Series), I, No. 2, pp. 52-55, 1 plate. Nesting of Ward's Heron (*Ardea herodias wardi*). Ibid., I, No. 4, pp. 114-115.
1906. Nesting of the Roseate Spoonbill in Florida. Ibid., II, No. 3, pp. 58-59.
1918. The American Robin in its northern migration, Feb. 15, 1915, in Pinellas County, Fla. The Oölogist, XXXV, pp. 6, 9; 2 plates.

Mr. Hoyt is survived by his widow, two sons, and two daughters.

A. H. H.

THE Museum of the California Academy of Sciences has recently acquired by gift the entire ornithological and oölogical collection of Messrs. Joseph and John W. Mailliard, prominent business men of San Francisco, and Fellow and Member respectively of the American Ornithologists' Union.

The collection contains close to 25,000 specimens, and is primarily a research collection. Of bird skins there are more than 11,000 specimens representing 777 species; of nests and eggs there are upwards of 13,000 specimens representing more than 600 species.

The Mailliard brothers have been interested in birds from their boyhood days, and these collections are the result of more than forty years of careful, painstaking field work. There are perhaps few, if any, collections that have been made with greater care or in which a greater percentage of the specimens have real scientific value. In the ornithological collection are some of the first reliable records of several species of California birds, as well as the only specimens of other species from localities where they are now unknown. There are also many albino specimens of unusual interest, and several remarkable hybrids. Of certain forms the series are

the most complete of any collection in America. In the oölogical collection there are large, carefully selected series of species now difficult or impossible to obtain.

The Messrs. Mailliard are members of the Cooper Ornithological Club and are both actively interested in the California Academy, John W. Mailliard being a trustee and Joseph Mailliard honorary curator of birds in the Academy's Museum.

The Academy is certainly to be congratulated upon securing this valuable collection, which, added to those already in its possession puts this institution in the front rank in the field of ornithology and oölogy in western America.

Now that the war is over and travelling becomes possible again a number of collectors are in the field. Roy Chapman Andrews of the American Museum of Natural History has returned to China to continue his work there, and Mr. Klages, the well-known bird collector, is making a trip through French Guiana to the Amazon. On February 26, Capt. William Beebe left New York with a party, which will establish themselves at the Tropical Research Station of the New York Zoölogical Society in British Guiana, where work of much importance will be carried on.

In view of the constantly increasing interest in ornithology and the increasing difficulty in obtaining specimens, it seems highly desirable that more information should be accessible regarding the extent and character of the larger collections of the United States and Canada. The student would thus have a better idea as to what material is available while museums and individual collectors by making known their desiderata would perhaps be enabled to fill their gaps.

One important collection has just been completely checked up and at our request the owner, Mr. J. H. Fleming of Toronto, has kindly given us his figures. This is one of the largest private collections and covers the birds of the entire world — a most commendable feature. We learn that it comprises about 25,000 specimens representing 5,377 species and 1,925 genera, as recognized in Sharpe's 'Hand List.' When we note that there are, according to this authority, some 17,000 species of birds and 2,647 genera, we realize that Mr. Fleming has about one third of the known species and three fourths of the genera represented, the latter being evidence of the painstaking care that he has exercised in bringing together this notable series of specimens.

In the Philadelphia Zoölogical Garden at the present time is a Naked-throated Bell-bird in full "song" if its peculiar calls may be so termed. These vocal efforts resemble exactly the strokes of a hammer on an anvil, the peculiar resonance of the ringing metal being perfectly reproduced.

There is also a specimen of the curious Kagu (*Rhinocetus jubatus*) of

New Caledonia, the original type of which was sent to the Colonial Exhibition at Paris in 1860 by Mons. Latour, and described by Jules Verreaux. We do not know whether there are any specimens of this bird in any American Museum but there are none in either the U. S. National Museum or the Philadelphia Academy of Natural Sciences.

The Kagu is closely related to the Sun Bittern (*Eurypyga helias*) though in appearance it looks more like a small pale gray heron. It is regarded as a very ancient and generalized type, with relationship to the Rails and Trumpeters.

We understand that another specimen is living in the New York Zoological Park.

WE learn from 'The Emu' that the annual meeting of the Royal Australasian Ornithologists' Union was held in Melbourne, December 4, 1918, and was attended by eighteen members, exactly as many as were present at the business meeting of the A. O. U. in November. The officers elected were A. F. Basset Hull of Sydney, President; W. H. D. Le Soeuf, Hon. Secretary; Z. Gray, Hon. Treasurer; and Dr. J. A. Leach, Hon. Editor of 'The Emu.' The R. A. O. U. has had 39 members in military service of whom 5 lost their lives during the past year. The Union maintains a room at Temple Court in Melbourne where it keeps its library and collections including the celebrated White and Austin collections of Australian birds' eggs. Well attended conversaciones are held at its room on the first Wednesday in each month and quarterly meetings at the National Museum. The report of the treasurer shows that the assets of the Union amount to over \$9000.

THE collection of birds in the U. S. National Museum has recently passed the 200,000 mark. This collection has doubled since 1884 when the number of specimens reached 100,000 (see 'The Auk,' 1884, p. 403). In this connection it is interesting to recall that the British Museum collection was said to have contained 500,000 specimens ten years ago (Ibis, 9th ser., II. Jub. Suppl. p. 4, 1909).

THE Treasurer reports that less than forty copies of the last edition of the 'Check-List of North American Birds,' published in 1910, now remain on hand. Members who have not secured copies should do so at once as libraries are constantly ordering the book and the stock will doubtless soon be exhausted. It will probably be several years before another edition of the 'Check-List' is issued.

AT the recent session of Congress two new National Parks were established on areas previously set aside as National Monuments. These parks are the Grand Canyon in Arizona and the Lafayette National Park on Mt. Desert Island on the coast of Maine. The latter reservation was previously known as the Sieur de Monts National Monument. This action

will insure greater protection of the wild life and we hope will result in the publication at an early date of information concerning the birds of these interesting regions.

GEOGRAPHIC DISTRIBUTION OF A. O. U. MEMBERSHIP.—As shown by the list published in this number of 'The Auk' the A. O. U. now has members in all of the states except three (Arkansas, Delaware and Mississippi), and also in Alaska, Hawaii, the Philippines and Samoa, as well as in all of the provinces of Canada except Alberta and Nova Scotia.

The foreign members, known as Honorary and Corresponding Fellows, number 85 and are widely distributed in all parts of the world. In America they are located in Cuba, Mexico, Costa Rica, Colombia, Brazil, and Argentina; in Europe in all of the principal countries except Norway, Portugal, Spain, Switzerland, Turkey and the Balkan States; and in Africa in South Rhodesia and Transvaal. The Union also has representatives in Ceylon, Japan, the Federated Malay States, British Papua, South Australia, Tasmania and Victoria.—T. S. P.

THE American Game Protective Association, the sportsmen's national organization, has done excellent work in branding as erroneous an Associated Press Dispatch to the effect that the Supreme Court at Washington has declared the Federal Migratory bird law unconstitutional. From their statement the country has been informed that "the so-called Federal Migratory bird law was repealed on July 3, 1917, when the President signed the Canadian treaty enabling act. The new measure which superseded the old one is a better and bigger law with exactly the same object in view. It provides what the former law lacked, an efficient machinery for its enforcement, and the governments of this country and Canada are now squarely united in the protection of all the birds of the continent north of the Rio Grande.

"What happened at Washington was that the solicitor-general asked to have dismissed his own motion before the Supreme Court, which was to test the constitutionality of the original migratory bird law. It was no use arguing the case, because there is no longer any Weeks-McLean law.

"The federal regulations, therefore, which absolutely protect in this country the birds which are valuable to agriculture and which make open seasons for the migratory birds which are shot for sport, are still in effect and the Federal Department of Justice will vigorously prosecute any violations of these regulations."

W. L. McATEE wishes to announce that he has undertaken as a hobby the preparation of a dictionary of vernacular names applied to A. O. U. checklist birds. As the project involves the examination of practically the whole ornithological literature of America, the main purpose of this announcement is to elicit information as to whether the field is clear. It

would be a great waste of time to have the same ground covered by more than one person.

Mr. McAtee has been collecting data of this nature for many years, and has published two glossaries of unusual bird names. He has also recently had the good fortune to receive for examination, through the courtesy of Mrs. Gurdon Trumbull and Mr. Samuel Scoville, Jr., the manuscript notes prepared by Gurdon Trumbull, for a second edition of his "Names and Portraits of Birds." Still more recently, Mrs. Trumbull has with the greatest generosity turned over to him this book together with all of Mr. Trumbull's miscellaneous notes on the habits and names of birds. This material will eventually be deposited in the Manuscript Division of the Library of Congress. Mr. McAtee will welcome suggestions relating to the whole project, and contributions, especially of unusual local names of birds.

THE Delaware Valley Ornithological Club is endeavoring to collect all existing data bearing upon the birds of Eastern Pennsylvania, New Jersey and Delaware. Information relative to any manuscript lists of early migration records, or published matter in out of the way places, will be gratefully received.

THE Delaware Valley Ornithological Club held its twenty-ninth annual meeting at the Academy of Natural Sciences in Philadelphia in January, 1919. Officers elected were President, J. Fletcher Street, Vice-President, George H. Stuart 3d, Secretary Julian K. Potter and Treasurer, Samuel C. Palmer. Thirteen meetings were held during the year with an average attendance of twenty-two. Twenty-seven members entered the National Service during the war and one, Archibald Benners, 1st Lieut. Marines, was killed July 3, 1918.